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DISPLACEMENT OF THE UPPER FEMORAL EPIPHYSIS

SUMMARY OF TWENTY-SEVEN STUDIED CASES *

CARL E. BADGLEY, M.D.

ANN ARBOR, MICH.

Displacement of the upper femoral epiphysis, apart from traumatic separation, was first recognized, according to Key,[1] by Muller in 1888. Since that time there has been a very active interest shown in this lesion by many investigators. Excellent summaries of the extensive literature on this subject have recently appeared, so that there is no need to review the literature in this paper.

The entity of displacement of the upper femoral epiphysis is well established. The signs and symptoms are well understood and clearly defined. The diagnosis is easily made by any one who is at all familiar with the syndrome, and it is readily corroborated by the characteristic roentgenologic evidence.

There still remain certain problems associated with this lesion which are not yet definitely solved. Chief among these problems are (1) the etiology of the lesion; (2) the pathology; (3) the fate of the neglected or unsatisfactorily treated patients, and (4) the treatment of the lesion.

ETIOLOGY

Many theories have been advanced to explain the etiology of this lesion. Present knowledge of the various phases that occur in the development of displacement of the epiphysis requires an explanation for the increased width of the epiphyseal disk which is so frequently observed in the early phase of this lesion. Endocrine dysfunction, trauma and body statics are the outstanding factors usually blamed for the displacement. These factors undoubtedly play a definite part in the production of the lesion, but no one of the factors is constantly present in all cases presenting epiphyseal coxa vara.

One of the characteristic features of the displacement of the capitate epiphysis of the femur is that it occurs in the early period of adolescence. There are certain anatomic alterations occurring at the hip joint at this period which may prove to be a definite factor in the etiology of the lesion. Key has pointed out that the periosteum of the neck of the femur, which is the chief factor in holding the epiphysis in place, is very thick and strong in children, but it atrophies in adolescence, thus producing a weak point at the epiphyseal line.

A second anatomic variation occurring about the time of adolescence is the alteration of the relationship of the head of the femur to the neck. Much has been written about the developmental changes in the neck of the femur, but practically no attention has been paid to the obvious fact that at about 11 years of age the epiphysis normally loses its transverse relation to the neck, and assumes a more vertical position. Wilson [2] states that an epiphysis more vertically placed than usual, as a result of an anatomic variation, would constitute an etiologic factor. He does not note that this variation normally occurs at adolescence.

A third anatomic factor is one that has not been previously recognized but is based on Walmsley's [3] recent report of the articular mechanism of the hip. Walmsley demonstrated that not only is extension of the hip beyond 15 degrees prevented by the capsule and its reenforcements but the head is securely locked in the acetabulum at this position, and cannot possibly go farther in extension. It is obvious that a force continuing extension beyond 15 degrees in an adolescent will necessarily produce motion beyond that point at the expense of the epiphyseal attachment. I believe that the mechanism of the displacement of the upper femoral epiphysis is produced by an extension force against the head locked in the acetabulum. An analogous mechanism is present in the displacement of the lower femoral epiphysis by the cart wheel force.

In addition to these anatomic factors, several clinical factors are observed in cases of epiphyseal coxa vara which are of importance. Key reports a history of rapid growth occurring during the period in which the lesion began in all of his studied cases of epiphyseal separation. A similar history was obtained in a number of my cases. Noble and Hauser [4] have demonstrated the association of marked excess weight with coxa vara of the adolescent type. The height of the excess weight curve coincides with the age period in which epiphyseal coxa vara commonly develops. Rarely is the patient able to describe the mechanism of his injury, but three of our patients gave a definite history of forced hyperextension of the injured hip. A roentgenogram taken of one of these patients a few weeks after the injury showed the characteristic widening of the epiphyseal line, and a year later a definite displacement occurred following violent osteopathic manipulations of the hip.

I believe that the anatomic factors appearing at the period of adolescence plus rapid growth and obesity,

* From the Surgical Department, University of Michigan Medical School.

* Read before the Section on Orthopedic Surgery at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 13, 1928.

1. Key, J. A.: Epiphyseal Coxa Vara or Displacement of the Capital Epiphysis of the Femur in Adolescence, J. Bone & Joint Surg. **8**: 53 (Jan.) 1926.

2. Wilson, P. D.: Displacement of the Upper Epiphysis of the Femur Treated by Open Reduction, J. A. M. A. **83**: 1749-1756 (Nov. 29) 1924.

3. Walmsley, T.: The Articular Mechanism of the Diarthroses, J. Bone & Joint Surg. **10**: 40 (Jan.) 1928.

4. Noble, T. P., and Hauser, E. D.: Coxa Vara, Arch. Surg. **12**: 501 (Feb.) 1926.

which are at their height at this period, make the union between the epiphysis and the neck of the femur a vulnerable one to a force producing hyperextension of the thigh. Endocrine disturbances merely enhance the vulnerability of the union.

PATHOLOGY

There has been little opportunity to study the pathologic changes in the early cases of epiphyseal coxa vara. The tendency to use the operative reduction may be a means to increase our knowledge of the disease.

FATE OF THE NEGLECTED OR UNSATISFACTORILY TREATED PATIENT

Little mention is made of the ultimate outcome of the untreated or unreduced displacement of the upper femoral epiphysis. I believe it important to consider here three patients with a history typical of an epiphyseal displacement following a definite injury during the period of adolescence. At the time of their entrance to our clinic, their ages were 54, 56 and 64. They all presented signs and symptoms of marked ostearthritis of the hip of the type commonly called coxae malum senilis. Their symptoms had slowly progressed, until at the time of their entrance there was practically complete loss of motion associated with an adduction and external rotation deformity, with a coxa vara. I believe that this emphasizes the necessity of proper reduction of the displaced epiphysis during adolescence.

TREATMENT

The treatment of displacement of the upper femoral epiphysis has until recently consisted chiefly of Whitman's manipulative abduction method. The recent report by Key of failure of reduction of the displacement in a single case of the thirteen reported does not condemn this procedure, but it does show the limitation of its use to only those cases of epiphyseal separation in which malunion has not occurred. Key demonstrated in the results reported that the limitation of motion was more marked in the patients treated by the Whitman method than in the untreated patient. I believe this to be true if manipulation is attempted in the malunited epiphyseal separation. In my series of seven patients in whom operation was performed, manipulation had been attempted previously in six. On inspection of the head at the time of operation, a definite depression in the cartilage was present at the site corresponding with the position where the displaced head might be forcibly impinged against the inferior posterior margin of the acetabulum. In addition, in two cases, the cartilage about the insertion of the ligamentum teres was raised from its base and an old hemorrhage was beneath it. Thus, I believe a traumatic arthritis may well be produced by forceful manipulation in these cases of malunion. The operation proved also the inadequacy of any attempt at manipulation to break up the solid union that was present.

TABLE 1.—*Patients With Displacement of Upper Femoral Epiphysis Treated at University Hospital*

Case, Sex,* Age	Entrance	Hip	Obesity	Fröhlich's Syndrome	Trauma	Treatment	Onset of Symptoms	Result	Classified as to Result
1. E. B. ♀, 12	1/10/24	Right	50 pound gain in 1 year	Yes ?	No	Whitman manipulation	Eight months previous; 4 weeks acute symptoms	8/ 6/24. Position fair; good range of motion; no deformity	Good
2. L. S. ♀, 12	1/18/24	Right	None	No evidence	Yes	Whitman manipulation	Four months	9/3/25. No limp; painless motion; flexion, 40 degrees	Fair
3. C. M. ♂, 14	6/19/24	Left	No record	No record	Yes	Whitman manipulation	Symptoms for 1 year	1/16/25. Good range of painless motion in all directions; three-fourth inch shortening	Good
							Four weeks following trauma	.....	No record
4. L. G. ♀, 13	6/17/24	Bilateral	No record	No record	Onset two months after a fall	Whitman manipulation	Two years	No final record of result.....	No record
5. W. W. ♀, 12	11/29/24	Right	No record	No record	Injury in June, 1923	Not treated	No record		
6. A. B. ♂, 13	7/29/24	Right	None	None	Severe injury; immediate disability	Whitman manipulation	Six weeks previous	Excellent range of painless motion in all directions, but some limitation in flexion	Good
7. V. W. ♀, 12	5/11/24	Right	None	None	Yes	Whitman manipulation	January, 1924	5/8/28. Flexion to 90 degrees, abduction to 10 degrees normal; rotation normal; 1 inch shortening	Good; not treated
8. W. P. ♂, 15	11/28/23	Bilateral	None	No	No injury	Not treated	No record		
9. N. B. ♂, 14	10/16/26	Right	None	No	Severe, with immediate disability	Whitman manipulation	October 12, 1926	Letter 5/28/28; excellent result; no limp or disability	Good
10. F. L. ♂, 14	3/ 3/27	Left	None	No	No injury	Operative replacement; beef bone fixation	June, 1926	X-ray examination in 1928; nonunion; coxa vara; 1 inch shortening; 85 degrees flexion; 10 degrees abduction; external rotation normal	Poor operative
11. D. S. ♂, 15	9/ 8/26	Left	None	No	Aggravated by injury	Manipulation unsuccessful; operation	January, 1923	Fibrous ankylosis of hip; 20 degrees flexion; 5 degrees abduction	Poor operative
12. C. D. ♂, 16	10/ 6/25	Bilateral	None	No	Right hip, no; left hip, yes	Whitman manipulation	Right hip, 9 mos. previous; left hip, 1 day; immediate disability	Right hip, 90 degrees flexion; 30 degrees abduction; adduction normal; slight external rotation; left hip practically normal	Right hip good; left excellent
13. J. S. ♂, 13	10/—/26	Right	Rapid growth, large boy	None	No	Whitman manipulation	Year before entrance; first stage of slipping	Full range of motion; no deformity; manipulation unsuccessful; open operation gave good reduction followed by nonunion and recurrence of displacement; has 100 degrees flexion and normal external rotation; internal rotation, two-thirds normal	Poor operative
14. E. F. ♂, 12	7/19/26	Right	Yes	Yes	No injury	Unsuccessful manipulation; operation	Six weeks previous to entrance		

* In this column, ♂ indicates male; ♀, female.

TABLE 1.—*Patients With Displacement of Upper Femoral Epiphysis Treated at University Hospital—Continued*

Case. Sex, Age	Entrance	Hip	Obesity	Fröhlich's Syndrome	Trauma	Treatment	Onset of Symptoms	Result	Classified as to Result
15. C. G. ♂, 18	8/27/26	Bilateral	Yes	No	No injury	Manipulation	Two weeks	No final notes.....	No record
16. Cl. D. ♂, 14	7/28/26	Left	Yes	Yes	Yes	Manipulation	Three months	No limp or pain; all motions normal, but internal rotation slightly limited and flexion slightly limited	Good
17. E. S. ♀, 13	8/18/27	Left	No	No	Hyperextension of left leg	Manipulation	Year previous	Marked limitation of motion; very small range; hip painless	Poor
18. L. F. ♀, 13	1/ 5/28	Left	No	No	Yes	No treatment; Whitman reconstruction advised	December, 1926	Deformity of 15 degrees abduction; 20 degrees flexion; 1 inch shortening	Not recorded
19. A. A. ♀, 14	1/ 3/28	Right	No	No	Forced hyperextension of right leg	Manipulation; operation	November, 1927	Manipulation did not alter position of epiphysis; open operation, Wilson type, performed; too recent for results; good position of epiphysis; intra-articular adhesions	Poor from manipulation
20. C. W. ♂, 15	1/16/28	Left	No	No	No	Manipulation; operation	Five months	Manipulation did not reduce displacement; Whitman reconstruction operation performed; intra-articular adhesions; slight motion in hip; too recent to report results	Poor from manipulation
21. D. H. ♂, 14	8/ 2/27	Left	No	No	Vague history; milch cows	Manipulation; open reduction	Eight months	Manipulation unsuccessful; operation resulted in marked deformity of flexion 55 degrees, abduction 25 degrees, and external rotation; 2 inch shortening; fibrous ankylosis	Poor from manipulation and operation
22. E. R. ♂, 15	12/22/25	Bilateral	Yes	Yes	History of fall	Manipulation	Fifteen months right; 3 mo. left	Walks without crutches.....	Poor
23. F. H. ♂, 16	4/25/28	Left	Obese type	No	Symptoms followed definite injury	Not treated here	Ten weeks previous	Symptoms of very early preslip stage; treated by hip spica by local physician	Not treated
24. J. H. ♂, 21	1/21/27	Right	No	Eunuchoid type	Severe injury with immediate disability	Operative; removal of head; neck placed into acetabulum	Ten weeks	An epiphyseal separation with complete dislocation of head from acetabulum; epiphyseal lines of long bones unhealed; fair range motion in hip in all directions; slight gluteal gait	
25. F. P. ♂, 54	2/24/25	Right	.....	.....	Injury	Not treated	Thirty-nine years previous	History of definite trauma followed by hip disability at age of 15; adduction external rotation deformity; coxae malum senilis	
26. I. B. ♂, 56	4/27/26	Left	No	No	Yes	Not treated	Age of 12 years	Coxae malum senilis; external rotation adduction deformity; coxa vara, 2 inch shortening; definite history of displacement at age of 12; his nephew is patient 9	
27. W. H. ♂, 64	2/ 6/28	Right	No record	No record	No definite history	Not treated	Age of 16 onset of symptoms; leg shorter; pain	Last two years, severe pain in hip; 1 inch shortening adduction and external rotation deformity; coxa vara; ostearthritis of coxae malum senilis type	

I believe with Key that the treatment should be divided into the various phases of the lesion, namely: (1) cases without displacement; (2) early cases; (3) advanced cases; (4) healed cases in young adults and (5) old cases with ostearthritic changes.

1. Cases without displacement, or the preslip stage, are seen occasionally. The usual method of treatment employed in these cases is the Thomas non-weight-bearing caliper splint. This I have found unsatisfactory, as I have seen the displacement occur while the patient was following this method. The use of a bivalved hip spica with the leg in abduction and slight internal rotation is advocated. Physical therapy and exercises could be given daily. If obesity is present, a reduction diet should be employed. Preferably no weight bearing should be allowed on either leg, as the superimposed weight on the well leg has in several of the patients produced a displacement. A six weeks period of rest should generally suffice and may be followed by the use of the walking caliper splint. Careful frequent observations until the epiphyseal line is healed are indicated.

2. The early case of upper femoral displacement, or the case with mild displacement or with complete displacement from a recent trauma, in my experience, is successfully treated by the Whitman manipulative procedure. I do not feel that it is necessary or wise to immobilize the hip completely for a period of ten weeks as is frequently advised. The third week after manipulation, union should be sufficient to allow bivalving the cast so that baking and massage may be employed. After six weeks, the child is placed daily in a salt water bath and encouraged to move the hip freely. At the end of eight weeks a non-weight-bearing caliper splint is employed, and walking encouraged. The splint is worn for about two months and then gradually discarded. In my series of eighteen cases, nine good results were obtained from the manipulative method.

3. Advanced cases are those in which malunion has developed, or in which replacement of the epiphysis by manipulation is unsuccessful. I arbitrarily place four months from the onset of the disability associated with deformity as the maximum period for reduction by manipulation. It is not always possible to arrive at a definite conclusion as to the time appearance of the displacement, but usually from the history one can get a definite idea of when displacement occurred.

I believe it essential, if malunion of the displaced epiphysis to the neck has occurred, to correct this deformity, as mechanically the joint is markedly altered by the malposition of the head and neck and is prone to produce later in life considerable disability because of ostearthritis of the coxae malum senilis type. I feel that the only operative procedures of value are those that aim to correct this alteration in the relationship of the head of the femur to the neck. From my own experience, I believe that the double osteotomy of Wilson is the operation of choice. It seems essential to place strong emphasis on the importance of maintaining the

periosteal and synovial attachments of the posterior inferior surface of the head and neck. If one fails to maintain this relationship, nonunion is prone to result. To stress the importance of this point, in four out of seven operative cases there was complete dislocation of the head from the acetabulum and the neck was freed posteriorly as well as anteriorly, before the osteotomy was performed and the displacement corrected. Two of these patients, in spite of apparent perfect reduction, developed nonunion. The third patient has a fibrous ankylosis in a good functional position and the fourth has a fibrous ankylosis in a very poor functional position of 25 degrees abduction and 55 degrees flexion with some external rotation. These results are very poor, but it is essential to report them, as proof of the danger of dislocating the epiphysis to obtain better exposure. The more simple procedure of Wilson's is much less harmful to the articular surfaces, and satisfactory reposition with good function can be obtained by it.

TABLE 2.—*Period of Displacement*

Case	Duration of Symptoms	Onset of Disability
1. E. B.	Eight months	Four weeks
3. C. M.	One year	Four weeks
6. A. B.	Six weeks	Six weeks
7. V. W.	Four months	Four months
9. N. B.	Four days	Four days
12. C. D. (right hip)	Nine months	Three weeks
(left hip)	One day	One day
13. J. S.	One year	Only mild displacement
16. Clarence D.	Three months	Progressive disability

4. Healed cases in young adults. In this group there is a solid union in malposition. Attempt at replacement of the epiphysis by operation might be successful, but there will frequently be marked thinning of the epiphysis and change in the head that make replacement impossible. In this type of case, I believe that the Whitman reconstruction operation is of value. My experience with this operation is too limited to permit an expression of opinion, but, of the two patients operated on, one has a good functional range of motion which is painless. In the second it is too soon to make a report, but the patient has at present quite a stiff hip. Under anesthesia a normal range of motion can be obtained, but definite adhesions are present which break under manipulation.

5. The treatment of the old displacement with development of ostearthritis remains a problem. Operation is decidedly a risk in the majority of these cases, but the severity of the symptoms frequently warrants such a procedure if sufficient chance of success could be promised. I do not know of any such operation at present, but I believe that the Hibbs extra-articular fusion may prove of value. Conservative measures, such as temporary rest by means of a plaster spica, relieve the symptoms for a period of time.

Since 1924 we have had at the University Hospital twenty-seven cases of displacement of the upper femoral epiphysis. Various phases of the lesion are present in these cases, ranging from an apparently normal hip, the preslip stage, the early stage and the advanced stage to the neglected end-result, the ostearthritic stage.

There were nineteen males and eight females in our series. The average age of the males, excluding the three old men with ostearthritis, was a little over 14 years. The average age of the females was 12.6 years. Obesity was present in five cases. Fröhlich's syndrome was observed in four cases, and one other case showed endocrine disturbances of the eunuchoid type. A history of trauma associated with the lesion was present in nineteen cases. Eleven patients had severe trauma immediately followed by symptoms and seven had complete disability immediately after the injury. The right hip was involved in twelve cases, the left in ten, and a bilateral involvement was present in five cases. The average lapse of time from the onset of symptoms to the appearance of the patient at the clinic was 240 days. Eighteen patients were treated by the Whitman manipulative method. In four of these the condition was bilateral, making twenty-two hips treated by manipulation. X-ray study of sixteen of these showed a good reduction of the displacement in nine cases. These successful reductions were obtained in all cases but two under six weeks following the symptoms of displacement. In the remaining two cases reduction was obtained four and eight months, respectively, following the onset of the symptoms in the hip.

There were nine good results following the manipulative treatment. Motion limited in flexion beyond 90 degrees and slight limitation in internal rotation and abduction may be present, but for functional purposes a very satisfactory result occurred. One patient had a fair result without limp, pain or deformity, but a more marked limitation of motion of the hip. There were nine poor results following manipulation, five of the patients later being operated on. There was no final record of the result in three cases.

Analysis of the nine successful cases (table 2) shows the actual period of displacement to be very short, although the symptoms in some cases were prolonged.

This analysis shows the average lapse of time from the onset of symptoms of displacement to reduction to be about forty-one days. In contrast to this, the unsuccessful results from manipulations were all more than four months in duration.

Seven patients were operated on. In five cases attempts at replacement of the epiphysis with the neck were made. The surgical result in four cases was poor, as already mentioned; the fifth is too recent to be commented on. In two patients operation was performed according to the Whitman reconstruction method. One result was satisfactory; the other is too recent to be reported.

ABSTRACT OF DISCUSSION

DR. PHILIP D. WILSON, Boston: Given a patient with Frölich's syndrome, between the ages of 12 and 14, preferably a boy, complaining of pain in the knee—the pain in almost all of these cases is referred to the knee in the beginning—and a history of intermittent limp, one can be quite certain that one is dealing with a beginning slip of the upper femoral epiphysis. I have seen several patients in the predisplacement stage, and the pain was so localized in the knee that invariably our house officers have thought there was something wrong with the knee rather than the hip. Frequently I have been able to make a snap diagnosis of the condition simply because it was so obvious. I am interested in what Dr. Badgley says about the failure of the weight-bearing caliper splint to prevent displacement when fitted in the early stage. His recommendation is right. The best treatment is either complete recumbency or the application of a short plaster spica with the hip in full abduction. Again, there is the danger of bilateral displacement. If one treats one hip one has to look out for the other. I have advocated open reduction in a certain number of these cases. I do not consider this necessary in patients who are seen soon after the displacement of the epiphysis has occurred. Usually one can manipulate that back successfully. If the case has been of more than three or four months' duration, open reduction is indicated. Our results by open operation have been far superior to the results obtained by closed reduction at the same stage. When performing an open reduc-

tion one must take care to avoid injury to the epiphyseal vessels. We have made injections showing the blood supply of the upper end of the femur in dogs, and one can see very clearly that the blood supply of the upper femoral epiphysis comes partly through the ligamentum teres but chiefly through the periosteum and synovia covering the neck. The vessels enter at the base of the capsule, run along the outside of the neck and reach the epiphysis. Therefore, when operating one must preserve the blood supply by saving the ligamentum teres and as much of the synovial covering of the neck as possible. Objection has been raised to open operation on the grounds that the power of growth of the epiphysis may be injured, but of all the cases of displaced upper epiphysis I have seen I have not yet encountered one which did not finally result in closure of the epiphysis and from one-half to three-fourths shortening of the leg, irrespective of the method of treatment.

DR. PHILIP LEWIN, Chicago: Two factors are of importance, the general and the local. The general factor is in the nature of an endocrine or a metabolic disturbance; the local factor is trauma, which may be one injury or more than one. Trauma to the vessels is an important factor. Changes in the vessels may be in the nature of thrombosis or embolism, which may be related to a previous trauma. Then the second injury does the harm. As to Dr. Wilson's statement concerning the circulation of the epiphysis, I think that there is experimental proof that some circulation does occur by way of the diaphyseal vessels. Dr. Cary has demonstrated in some of his sections that little vessels do go through the diaphysis into the epiphysis. The treatment should be divided into local treatment, which has been discussed very thoroughly, and general treatment, about which very little was said, except that Dr. Badgley remarked that in obese children reduction of diet was prescribed. While these patients are under treatment—and I am referring to those who have an endocrine disturbance—they should be treated with thyroid and pituitary, substance or extract, and especially in combination. This treatment should be carried out at the same time that the local treatment is instituted, and any other general treament that is indicated, such as reduction of diet. There is no question that many of these cases, especially those of the Froehlich syndrome, show disturbances of the thyroid and pituitary. I do not believe that any one knows which is primary and which is secondary, because there cannot be much disturbance of one gland of internal secretion for any length of time without other glands being involved in the disturbance. Dr. Badgley referred to the question of the other hip. While one hip is being treated, the other may become affected. That is one important reason why the general endocrine and metabolic situation should be kept in mind.

DR. CARL E. BADGLEY, Ann Arbor, Mich.: It is my opinion that an endocrine dysfunction has little part to play in this condition other than that it does enhance the vulnerability of the epiphyseal attachment. I believe that the anatomic and physiologic factors mentioned, plus the fact that the head is locked in the acetabulum when it reaches 15 degrees extension, is the causative factor for the displacement of the epiphysis appearing at an early phase of adolescence.

The Pulse in Chinese Medicine.—There are seven special pulses which indicate impending death. If the pulse resembles the pecking of a bird, or water dripping from a roof crack, or the upsetting of a cup it means extinction of the spleen pulse and death may be expected within four days. If the pulse resembles feathers blown by the wind, or feathers brushing against the skin, it indicates serious disease of the lungs and the end will come within three days. It is a sign of fatal kidney trouble and death may happen within four days if the pulse is like the snapping of a cord or like the flipping of the finger against a stone. When the liver ceases to perform its function the pulse is like the string of a new bow or like the blunt edge of a sword. The patient will die within eight days. If the pulse resembles the rapid rolling of peas, death may be expected in a day. A pulse acting like a fish or shrimp darting about in the water or a pulse like water oozing from a spring is a fatal symptom.—Wong, K. C.: The Pulse Lore of Cathay, *China M. J.*, December, 1928.

TREATMENT OF DUODENAL AND FECAL FISTULA

FURTHER OBSERVATIONS

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Since the first publication of my[1] observations on the treatment of duodenal fistula, further experience has furnished additional data and proof that the pancreatic juice plays the major rôle in the resistance to healing of duodenal fistulas, most fecal fistulas of the small intestine, and many of the large intestine, when there is a liquid or semiliquid content on account of an excess of pancreatic juice. By controlling the proteolytic action of trypsin, the very powerful enzyme contained in the pancreatic juice, one has the means of stopping the extensive irritation and digestion of the abdominal wall, which is fairly eaten up if it is allowed to continue unchecked for even a short period of time. As was previously stated, the main action of the pancreatic juice is the digestion of protein in an alkaline medium, which is the normal reaction of the contents of the duodenum and small intestine. It was shown that, by supplying an excessive amount of tenth-normal hydrochloric acid or dilute acetic acid to the crater of the fistula, the discharge was neutralized or acidified, and the digestive action of trypsin ceased. In case there might still be an excess of pancreatic juice, regardless of the use of the acid, it was stated that the edge of the circumference of the crater was surrounded by gauze soaked in an artificial protein in the form of sterile beef juice to allow any overflow to digest this before it could attack living tissue of the abdominal wall. There is an additional factor which must be combated, and unless one realizes that the grave toxemia that develops may overwhelm the patient, the active treatment may not cause diminution of the discharge soon enough to prevent death from this overpowering toxicosis. Walters and his co-workers have studied the toxemia incident to duodenal fistula, and have found that increasing alkalosis, characterized by decreasing concentration of blood chlorides and progressive rise of blood urea, occurs. They conclude that the toxemia results in its major part from a loss of the action of chlorides of the digestive juices, which are discharged through the fistula, and that this loss turns the tide of the neutrality of the blood toward alkalinity; i. e., that the excessive discharge from the fistula increases the volume of chlorides discharged and further depletes the body chlorides and increases alkalosis. Any toxic state is accompanied by increased blood urea, the result, in some cases, of the production of nephritis, which prevents the elimination of urea and may infrequently be due to an abnormal amount of urea formed from the breaking down of body tissues. Toxemia, the result of an obstruction of the biliary, the urinary or the intestinal tract, naturally elevates the blood urea. Haden and Orr[2] have proved this to be the case in intestinal obstruction, but it is just as evident in duodenal and fecal fistulas. Therefore, the chemical status of the blood in intestinal obstructions and duodenal or high fecal fistulas is practically the same.

In duodenal and intestinal fistulas, the loss of body fluids and starvation are just as important factors as in

1. Potter, Caryl: Treatment of Duodenal Fistula, J. A. M. A. **88**: 899-901 (March 19) 1927.
2. Haden, R. L., and Orr, T. G.: Surg. Gynec. Obst. **37**: 465 (Oct.) 1923; J. Exper. Med. **37**: 365 (March) 1923.

intestinal obstructions. The treatment of the toxemia, therefore, must not be confined solely to the replenishing of the depleted chlorides, but fluids and dextrose must be abundantly furnished as long as the excessive loss, toxemia and starvation continue. Whether the associated disturbance of the mobility of the bowel is important is conjectural.

It may be that the balance of production is so disturbed by the continual discharge of pancreatic juice through the fistula that the pancreas is stimulated to an overproduction, with consequent increased loss of body fluids and extreme depletion of blood chlorides, with resulting alkalosis, toxemia and starvation.

Realizing the importance of the upkeep of body chlorides, fluids and nutrition in all cases of high intestinal toxemia, I had forced salt solution and given large amounts of dextrose, based on Haden and Orr's experiments and the realization of the needs of fluids and dextrose, even before having had the opportunity to read Walter's conclusions.

It is an established fact that the higher the origin of the intestinal fistula, the more difficult it is to heal—that the ease with which it can be healed and the lessened severity of the toxemia are in direct proportion to its distance from the pylorus. The greater the fluid content of the discharge, the more irritating it is and the more irritated the tissues of the abdominal wall become. The reason for this seems to be the presence of an increased volume of pancreatic juice with its greater quantity of trypsin. It is noticeable how the skin irritation around a fecal fistula decreases on a constipating diet with a more concentrated fecal content. This is not so noticeable in duodenal fistulas, because nothing can be done to solidify the intestinal content, and the discharge of pancreatic juice is fairly constant. There is no chance of solidifying or partially solidifying the intestinal content immediately below the pyloric sphincter. The abdominal wall surrounding this type of fistula is continually bathed in pancreatic juice and bile.

Further observations have tended to show that bile plays a minor rôle in the digestion of the abdominal wall, although there is some digestion of the fats. Obese patients, with pendulous abdomens, show greater digestion and more likelihood to infection from a biliary fistula than the less obese types. In the original mixture I used beef juice as a digestant for the pancreatic juice, and olive oil as a digestant for the bile, but have found that the beef juice alone prevents the irritation just as well as the mixture of foreign protein and fat. That the irritation is mainly due to pancreatic juice is again demonstrated by referring to the well known observations that gastric fistulas show very little irritation of the abdominal wall, and that biliary fistulas, with a rare exception, heal spontaneously. In doing a jejunostomy the Wetzel method, or some modification of it, with its valvelike control of the backflow of pancreatic juice, is to be preferred to a simple jejunostomy, with a purse-string suture, because some of the most irritating jejunal fistulas follow the use of the latter procedure. The severity of fistulas, following the purse-string method, was illustrated by a report sent to me from Dr. Hoag of Fort Smith, Ark., of one of my own patients and by another patient, operated on elsewhere, who later came to me. In fact, from personal observations of different types of enterostomy in the small intestine, it would seem that all enterostomies performed by some valve type of operations, such as the Wetzel, show less abdominal wall digestion and irritation than those in which there is a direct discharge through the abdominal wall. Postoperative small intestinal fecal fistulas are notoriously persistent and irritating, and most of them do not heal spontaneously.

In one of the cases here reported, in which I was later called in consultation, a high enterostomy had been performed on a child that was dying because of a too long standing acute intestinal obstruction from adhesions, two years following an operation for perforated appendicitis. It was reported that a single purse-string suture was pulled tight around the tube introduced into the intestine. The resulting fistula was most destructive. The reaction was alkaline, and liquid fecal matter, containing a large amount of pancreatic juice, had caused the characteristic toxemia and the digestion of the abdominal wall, including a wide area of skin irritation beyond the crater of the fistula. At the time I was consulted, the wound was being treated by a concentrated solution of sodium bicarbonate and by sodium bicarbonate powder. The wound not only had not shown any improvement but had become very much worse. In this concentrated alkaline medium, the erosion from the pancreatic juice seemed accentuated. The wound rapidly healed under treatment with beef juice and normal hydrochloric acid. Dilute acetic acid was first used, but the healing was faster when the hydrochloric acid was substituted.

The method previously described dealt only with duodenal fistulas, but after observing the results of the same treatment in fecal fistulas, of both the small and the large intestine, it is my opinion that the treatment is curative in the large majority of fecal fistulas. It is also most effective in overcoming the chafing of the skin around the anus in acute and chronic diarrhea, especially in infants. I agree with Duke that this chafing of the skin around the rectum is due to the digestive, eroding action of the pancreatic juice.

If this is true, medical treatment will practically supplant surgery in the treatment of fecal fistulas in the majority of cases.

The time required for cure is affected by: (1) the proximity of the fistulous site to the pyloric sphincter; (2) the volume of the pancreatic juice in the intestinal content; (3) the resistance of the patient; (4) infection; (5) intra-intestinal pressure, and (6) the persistence and thoroughness of the treatment.

Intestinal fistulas are less persistent and less resistant to treatment in proportion to their distance from the duodenum because of the dilution of the pancreatic juice by its mixture with other intestinal secretions and the products of intestinal digestion lower down. Under normal conditions the fecal content is more solid the more nearly it approaches the rectum. A diarrhea per se or induced by a purgative increases the volume of pancreatic juice and liquefaction of fecal content and consequently the irritation and digestion of the abdominal wall. It is therefore wise to attempt to bring about constipation in the patient by placing him on a boiled milk diet. Boiled milk, in addition to its constipating effect, supplies intra-intestinal protein for the digestive action of pancreatic juice, and so tends to cut down the excess. From 4 to 6 ounces (120 to 175 cc.) of boiled skimmed milk is given every four hours. The oral administration of from one-tenth to one-fifth grain (7 to 11 mg.) of powdered opium, every two or three hours, tends to decrease peristalsis and lower intestinal pressure. If secondary anemia occurs, blood transfusions and intravenous injections of iron are given. Ordinary methods to combat local infections are used. The toxemia, starvation and alkalosis are overcome by

hypodermoclyses and the intravenous administration of hypertonic salt solution and dextrose, with indicated amounts of insulin when large amounts of dextrose are used.

The keynote of the treatment, however, is the local application of tenth-normal hydrochloric acid and sterile beef juice. The former is used to overcome the alkalinity of the intestinal content, as pancreatic juice becomes inactivated in an acid medium. The latter supplies a foreign protein, with which the pancreatic juice first comes in contact and digests it instead of the abdominal wall. The details of the use of both were described in my previous paper, in which attention was called to the suggestion that dilute acetic acid might be used as a substitute for tenth-normal hydrochloric acid, as it had been used on the chafed buttocks in cases of acute or persistent diarrhea. I tried acetic acid in strengths of 0.5, 1, 2 and 5 per cent but found it much less effective than tenth-normal hydrochloric acid. It also seemed to cause a burning sensation, which was unbearable to many patients. After having used it in cases of red, scalded surface epithelium, with exposed nerve heads, I abandoned it in favor of tenth-normal hydrochloric acid. This, in conjunction with the beef juice, causes practically no irritation and is more effective, the fistulas healing much more rapidly.

The beef juice and hydrochloric acid treatment applies more particularly to fistulas of the duodenum and small intestine than those of the large intestine; i. e., when patients have a tendency to loose bowel movements which contain a high ratio of pancreatic juice. Fistulas of the large intestine in an otherwise normal bowel usually heal spontaneously, unless there is a large defect in the bowel wall and mucous membrane, such as is present when a large area of the wall of the large intestine has sloughed out or been removed in surgical colostomies. If, however, there is skin irritation during the process of healing, this is direct evidence that an excess of pancreatic juice is present and the beef juice and hydrochloric acid will eliminate the erosions of the skin and abdominal wall caused by it.

Persistent fecal fistulas in which irritation or digestion of the abdominal wall from pancreatic juice is not the causative factor will, of course, have to be closed by means of surgery. But the persistence of most fecal fistulas is due to irritation from pancreatic juice in a semisolid or liquid fecal content. In the large intestine the action of the pancreatic juice is attenuated and the fecal content is more solid.

REPORT OF CASES

CASE 1.—This was a case of duodenal fistula described in my first report.[1]

CASE 2.—I was called in consultation to see a patient who had been operated on for acute, perforated appendicitis. At operation the appendix was found to be slightly congested, and the right lumbar gutter and pelvis were filled with chylous fluid. The diagnosis of peritonitis (cause unknown) had been made, two large drains inserted, and the abdomen closed.

During the next twenty-four hours, the dressings had been saturated very often, and at the end of that time the abdominal wall showed the usual digestion from pancreatic juice. The patient had evidently had an unrecognized, perforated duodenal ulcer. Hypodermoclyses of salt solution and dextrose were given twice daily, and the wound was surrounded in its entire length with gauze soaked in beef juice. A trough was left in the center, and long strips of gauze, dripping in tenth-normal hydrochloric acid, were laid directly over the entire length of the wound and changed every hour. The wound had practically healed in twenty-six days.

This was indeed a remarkable case. There had been no attempt to close the duodenal ulcer. Drains had been inserted which had found the site of perforation and merely given an outlet to the leak from the perforation; yet without any suturing whatever to close the perforation, the fistula healed with the treatment described. Therefore, before attempting a second operation in depleted patients to close a leak after failure of the primary suture line, it would be wise to try this palliative procedure. Surely it could do no harm. If a perforated duodenal ulcer, which had had no suturing at all would heal at the primary operation, isn't it reasonable to suppose that many suture line leaks would show a similar response?

CASE 3.—A man, aged 29, had a perforated duodenal ulcer and evidence of a spreading peritonitis that made it necessary to invert the ulcer with a double purse-string suture of hard catgut, reinforced by a piece of omentum stitched to the suture line. The perforation was the size of a pea, and there had been considerable spill. I advised the family that it would be necessary later to do a gastro-enterostomy. About the eighth day after the first operation the abdominal wall appeared irritated and the dressings were saturated with pancreatic juice. Beef juice and acid treatment was instituted, and the fistula healed in eleven days. Four weeks after the first operation the abdomen was opened through a new midline incision, extending from the xiphoid to the umbilicus. The condition present, revealed at the second operation, was very interesting. The site of the old perforated duodenal ulcer, with its healed duodenal fistula suture line, had plastered itself to the abdominal wall at the site of the primary right rectus incision and had healed in that location. At the second procedure a posterior, no-loop gastro-enterostomy was done, without disturbing the site of the previous operation. The wound was closed without drainage, and the patient made an uneventful recovery and has remained well ever since.

CASE 4.—In a child, already referred to, a simple enterostomy was done for acute intestinal obstruction, with a resulting fecal fistula of the most virulent type, which had been treated by sodium bicarbonate, applied in concentrated solution and in powdered form. Under this treatment the fistula became progressively worse but healed in eight weeks' time with beef juice and acid. For the first two weeks the acid used was 1 per cent acetic. Although there was marked improvement I was not satisfied with the rapidity of the healing, and therefore changed to tenth-normal hydrochloric acid. The change was followed by rapid healing, and the fistula had closed in six more weeks.

CASE 5.—A woman, aged 32, had a gangrenous pus tube and pelvic abscess of gonorrheal origin. The abscess could not be reached through the culdesac, so a low, right rectus incision was made. The abscess was drained. A loop of small intestine was plastered to the abscess wall. Three drains were introduced. Their removal was followed by a large fecal fistula, which showed the usual irritation and healed under the described treatment.

CASE 6.—A child, aged 6 years, developed an acute intestinal obstruction the fourteenth day following an operation for acute appendicitis, with perforation and abscess. The child's condition was alarming, and a rapid, simple jejunostomy was done, under local anesthesia. The resulting fistula was almost as devastating as a duodenal fistula, but in three weeks' time it had yielded to beef juice and hydrochloric acid. The loop of obstructed intestine evidently became ironed out with drainage of the jejunum and subsidence of the inflammation, for at the end of the second week the bowels commenced to move through the rectum, and bowel movements have been normal since.

CASE 7.—A thin woman, aged 32, was operated on for acute appendicitis, with perforation and abscess, the appendix being removed but no attempt made to invert the stump on account of edema. Pus from the right lumbar gutter and pelvis was aspirated by means of suction, and one soft tube and two cigaret drains were inserted. On the sixth day the patient showed symptoms of gradually developing obstruction; she appeared toxic, and only a small amount of gas and fecal matter were passed after repeated enemas; on the seventh day there were only a few bubbles of gas. The patient's condition was grave. A simple jejunostomy, by means of a purse-string suture, was

performed. The patient improved very much the following day and each succeeding day. The seventh day the tube sloughed out of the wound, which was becoming very much irritated by a leak of pancreatic juice around it. Beef juice and acid treatment was started. The bowels began to move through the normal channel the tenth day, and the jejunal fistula had closed the twentieth. At the time of dismissal from the hospital, the appendix incision showed a discharging sinus.

The following cases treated by the same method are reported through the courtesy of the physicians named:

CASE 8.—*Fistula of jejunum* (reported by Dr. Arthur F. Hoge, Fort Smith, Ark.).

A patient had had an operation for gallstones in which a cholecystostomy was done. The operation was done in a neighboring town, and the patient progressed fairly satisfactorily for about five days, when he developed evidence of obstruction. All of the usual measures had been tried, and it was evident that more radical measures were necessary, if the patient was to survive. It was decided in consultation to do a jejunostomy, under local anesthesia. The jejunostomy relieved the immediate crisis, but the ensuing fistula proved very vicious. There was a great deal of leakage around the tube, and evidently the opening in the jejunum was rather high, for the secretion escaping consisted of partially digested milk and watery intestinal secretions. The patient was seen again at this time and the method described was instituted, slightly modified, with evident prospect of success. The patient has improved, the wound is healing, and recovery seems assured.

A later report from Dr. Hoge states that the patient has been in good health.

CASE 9.—*Duodenal fistula* (reported by Dr. W. H. Parsons,[3] Vicksburg, Miss.).

G. M. D., a white man, married, aged 40, whose family history is irrelevant, had fair general health until 1907, when pain developed in the right side. A diagnosis of appendicitis was made, the pain recurred at intervals, and the appendix was removed in February, 1922. In 1907 a small anal fistula began, was treated and healed. There was no further difficulty. In July, 1908, there was hemoptysis and this recurred at intervals. Acid-fast bacilli were found in the sputum in January, 1916. The patient was in the state sanatorium at Magee for several months, and approximately one year was devoted to intensive treatment of the chest. Early in 1921 pain developed in the upper part of the abdomen, and after he had suffered for a protracted period without relief with medical treatment, the gallbladder was drained and an appendicectomy done in March, 1922. Recovery was uneventful and there was relief for several months. Hemorrhage from the stomach occurred in 1923, and in February, 1925, there was another severe hemorrhage. At that time a diagnosis of gastric ulcer was made. Examination was essentially negative except for poor nutrition (weight, 138 pounds (63 Kg.); secondary anemia, poor oral hygiene and inactive pulmonary tuberculosis were added to the diagnosis. An operation was performed, April 13, 1925, and an ulcer on the posterior wall of the stomach was excised. A second ulcer was found in the first portion of the duodenum, and a posterior gastro-enterostomy was done. The duodenal ulcer was not excised. The recovery was stormy, but ultimately healing occurred, and there was no further evidence of ulcer until July, 1927. Jan. 20, 1926, there was, however, a severe hemorrhage from the bladder, and cystoscopy revealed a very red and granular mucous membrane just within the sphincter margin. This was cauterized, and the result was satisfactory.

In August, 1927, there was a profuse hemorrhage from the stomach, and the patient's condition became very grave. Recovery from the hemorrhage was slow, but on Oct. 31, 1927, it was felt that he had gained as much ground as could be expected, and another operation was done. This was started under regional anesthesia, but it was necessary to make it general in order to free adhesions. A large, penetrating ulcer of the anterior wall of the stomach was found to be firmly attached to the abdominal wall. The stomach and duodenum were mobilized with considerable difficulty, and partial gastrectomy was performed. There was no postoperative bleeding and no distention. On the evening of the second day after operation the temperature reached 103.4, and the pulse 138, and both remained at approximately that level. During the night the pulse became irregular and there was some delirium. The temperature then fell, but delirium persisted, and the patient was wild, in spite of the administration of morphine, heroin and phenobarbital. At 6 p. m. on the sixth day after operation a small amount of bloody serum was discharged from the lower part of the operative incision. The following day a left parotitis developed. By noon of the seventh day there was definite drainage from the wound. This was dressed at frequent intervals, drainage was done by aspiration, and heat was applied by means of a high-powered light. The patient grew much more toxic, and the following evening the wound drained profusely. By evening of the eighth day the edges of the incision had separated, and the skin, muscles and fascia were horribly irritated and eroded, and rapidly going on to destruction. The entire wound presented the picture of a violent irritation and destruction of tissue.

At this time the treatment here suggested was begun, except that dilute acetic acid was substituted for hydrochloric. The wound was dressed at intervals of every two hours. On the ninth day there had not been any further destruction of tissue; on the tenth, there was definitely less toxemia, and the wound appeared improved. Within three days after this treatment was begun, the wound showed definite improvement, and dressings were done only every three hours. It was necessary to drain the parotid gland. On the twelfth day there was slight hemoptysis. Repeated administrations of saline and dextrose solution intravenously were followed by rigors. It was necessary to reopen the parotid. The general condition of the patient and the abdominal wound showed marked improvement. On the thirteenth day the temperature was 99.8, and the pulse 92. The wound was now being dressed at intervals of every four hours, and there was only a small amount of drainage. On the fourteenth day the temperature was normal and the pulse 80, and general liquid and semisolid nourishment was given. On the fifteenth day the wound was pulled together by adhesive tape strapped across the abdomen. It was necessary to reopen the parotid gland on the seventeenth day. Convalescence from then on was uneventful, and the patient was discharged from the hospital on the thirty-sixth day.

At a recent examination the weight was 164 pounds (74 Kg.), a gain of 34 pounds (15 Kg.) since the operation, and the digestion was satisfactory. A light diet was taken without difficulty.

Dr. Parsons' opportunity to observe treatment of duodenal fistula in the manner I suggested has been limited to this case. He believes that the treatment is based on sound anatomic, physiologic and pathologic grounds. Certain it is that, in the past, the methods used in treating this condition have been far from satisfactory and the mortality rate has been high. It will take time, of course, and many cases will be required before one can establish just what the expected mortality may be in this condition in which the treatment is used. However, as it is worked out on rational grounds, he believes that it would seem at this time to be the treatment of choice.

COMMENT

When continuous suction is used to treat duodenal or high intestinal fistulas, I believe that the healing would be much more rapid if the suction tip in the crater of the fistula were surrounded by strips of gauze, soaked in beef juice and tenth-normal hydrochloric acid. This would take care of any overflow or puddling that might occur, and I am sure would increase very much the rapidity of healing and the efficiency of the suction method. When the crater becomes so small that it will be difficult to hold the suction tip in place, the beef juice and hydrochloric acid will complete the closure.

It has not been necessary, however, for me to use suction in any case, but I cannot see any reason why the suction would not be efficacious in taking care of

3. Parsons, W. H.: Duodenal Fistula, read before the Mississippi Medical Society, May 8, 1928.

a large amount of the drainage, and thereby lessen the number of dressings. The beef juice and acid treatment, however, is simple, safe and sure, and is available to any one, whether he has or has not access to the equipment necessary for establishing continuous suction.

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IS THE VITAL CAPACITY AN AID IN THE DIAGNOSIS OF HILUM GLAND TUBERCULOSIS?

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The diagnosis of hilum gland tuberculosis is at best a difficult one to make. The physical signs are usually conspicuous by their absence except in the far advanced cases, and, despite the various signs and symptoms that have been described by different authors as diagnostic of this condition, the fact remains that in the vast majority of cases these are not present and when present are far from being pathognomonic. This paper is a preliminary report on the question as to whether or not the vital capacity is an aid in the diagnosis of tracheobronchial tuberculosis.

The term vital capacity is one used to indicate the amount of air one can expire after the deepest possible inspiration. John Hutchinson, an English surgeon, first used the term vital capacity about eighty years ago; he made extensive observations on this subject but did not make any special claims for the importance of his test in diagnosis. Since that time other observers, notably Peabody and his co-workers [1] and Myers,[2] have shown it to be of some value in cardiorespiratory diseases. Since then a vast amount of literature has appeared on this subject with some rather extravagant claims as to its value as a diagnostic procedure, particularly in obscure pulmonary conditions.

Wilson, Edwards and Liss,[3] for instance, have come to the conclusion that a reduction of more than 15 per cent in the vital capacity of a normal child indicates the necessity of a roentgenologic examination, while a reduction of from 15 to 42 per cent was invariably found in children with tracheobronchial adenopathy.

The present study is based on observations made on 200 children, between the ages of 7 and 12, admitted to the Prendergast Preventorium of the Boston Tuberculosis Association. Each of these children had been exposed to an open case of tuberculosis and each had a positive Pirquet test. The readings of the vital capacity have been correlated with the physical signs and roentgen observations.

The vital capacity observations were made by means of an accurately calibrated wet spirometer. Each child was instructed to take the deepest possible inspiration and then to empty the lungs completely into the spirometer. At least three readings in each case were taken. The estimation of normal vital capacity for each child was based on height, age and weight. Dreyer had asserted that sitting height rather than standing height was more closely associated with vital capacity. Other observers, however, notably Boynton,[4] believe that there is less chance of error by using the standing height. We are in accord with their opinion and therefore used the standing height in this study.

For the normal standard we have used the tables of Stewart and Sheets,[5] which represent the averages obtained from a study of 2,400 school children. These tables show the normal vital capacity of the lungs for different standing heights at each age for both sexes. A deviation of vital capacity of not more than 10 per cent below the estimated standard for that child was not considered as abnormal. Our results show that the vital capacity of each of the children at this institution was practically normal. Children 7 per cent and more underweight showed no more diminution in vital capacity than those who were considerably overweight. In fact, of the 200 children, thirty who were 7 per cent or more underweight for their age and height had as an average a slightly higher vital capacity than those of the normal or overweight group. This was equally true of the children who showed roentgenologic and other evidence, such as d'Espine's sign, of having enlarged tracheobronchial glands. Of the 200 children, twenty-eight who had definite clinical and roentgen signs of enlarged tracheobronchial glands had vital capacities well within normal limits.

It is interesting to note that, of the group studied, we found nine children who showed a vital capacity of from 15 to 42 per cent below normal. Seven of these showed definite evidence of valvular heart disease and two had scoliosis with some deformity of the chest, so that the low vital capacity could well be ascribed to other factors rather than pathologic conditions of the lung or hilum. In the cardiac cases, for instance, a reduction in the vital capacity is explained by the theory first suggested by Drinker, Peabody and Blumgart [6] that there is back pressure in the pulmonary circulation causing a dilatation of the pulmonary capillaries, which encroach on the pulmonary alveoli, thus resulting in a marked diminution of the vital capacity, while in the cases of scoliosis, the cause for the reduced vital capacity is obvious.

CONCLUSIONS

We feel justified in concluding as the result of this study that the estimation of vital capacity, in the quiescent case of hilum tuberculosis on which our work has been based, is of no value in diagnosis. We frankly admit that this conclusion does not necessarily apply to the diagnosis of active hilum tuberculosis showing clinical signs and symptoms.

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The Decrease of Typhoid.—During our lifetime typhoid fever, which was relatively so common a few years ago, has been made to be of infrequent occurrence. This has been done in two ways: by the careful supervision of water supplies, and the use of typhoid and paratyphoid A and B vaccine in persons who must take chances of becoming infected. The recent war showed how typhoid fever could be controlled by the routine use of vaccine.—McCrummen, T. D.: Practical Preventive Measures in Children, *Texas State J. Med.*, December, 1928.

THE CURD AND THE BUFFER IN INFANT FEEDING*

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Acid milk of one kind or another has long held first place in the therapeutic armamentarium in the artificial feeding of infants with diarrheal disorders. Buttermilk, a by-product of the dairy industry and for generations a standard food for babies in Holland, found its way into scientific pediatric circles at about the beginning of the present century, chiefly through the efforts of Teixeira de Mattos.[1] For many years it held its place as the *ne plus ultra* of artificial foods in the feeding of pathologic infants. Its evident superiority over fat free sweet milk was never seriously questioned, authoritatively, except by Czerny and Keller,[2] in 1906, with whom it followed as a logical corollary to the view that in the fat lay the essential difficulty in artificial feeding. In the latter part of the second volume of the same edition [2] (1917), and in the second edition, they, too, acknowledge their error. The fat phobia persisted more or less, and rightly so under the conditions then current, until the introduction in 1908 by Finkelstein and Meyer [3] of the epoch-making "eiweissmilch" with its 50 per cent content of buttermilk, to the acid of which, however, they attributed little, if any, virtue as such.

More recently Marriott [4] and his co-workers have given to acid whole milk the first place in efficiency and popularity as a therapeutic food for infants in this country. Marriott's [4] brilliant investigations and convincing clinical reports led to a realization of the facts that in acid milk the fat can be retained without harmful and therefore with beneficial results; that acid whole milk can be given without dilution; that milk to which lactic acid is added has approximately, perhaps identically, the same virtues as cultured lactic acid milk, and, finally, that in acid milk enormous amounts of suitable soluble carbohydrates can be added safely and, therefore, again with the greatest benefit. More recently hydrochloric acid [5] and acetic acid, or vinegar,[6] lemon juice, and orange juice [7] have been advocated by others with apparently the same immediate results as those obtained with lactic acid.

It is interesting to note that as long ago as 1887 Hayem [8] reported favorable results from the use of from 5 to 8 teaspoonfuls a day of 2 per cent lactic acid given as a medicine in gastro-intestinal disorders with vomiting and diarrhea. Moll [9] made similar observations later but attributed the result to some remote favorable action of the acid rather than to the acidity itself.

That acid milk is greatly superior to sweet milk as a therapeutic infant food can then no longer be questioned. It is pertinent, however, to ask, What is the source of this superiority—and what is its essential nature? Is it the acid itself as such, or is it some effect of the acid that can perhaps be obtained in some other way? The answer to these questions is not without practical significance of the greatest importance. If the same result, or approximately the same result, can be obtained in a simpler, safer, less potentially harmful manner than that of adding an acid to baby's milk, that method would naturally become the method of choice, other things being equal. My purpose in the present paper is to outline and to report progress on an investigation that is being carried on at the Children's Memorial Hospital which has as its objective a critical clinical examination of the validity of the theories advanced as to the cause of the superiority of acid milk over sweet milk. The final results of this work will be reported in detail at a later time by Drs. Kaufmann and McEnery.

To one acutely familiar with the development of the knowledge of infant feeding, it would seem possible, even probable, that there are several factors that enter into this problem, as they have into so many others. It is known, for example, that the acid has a decided germicidal action, the value of which is not as yet ponderable. It may have some as yet unsuspected action on the fats or the carbohydrates. Moll [9] and others have shown that optimal quantities of acid have a favorable effect on metabolism, especially of the mineral salts. In the present state of knowledge all of these would seem of minor, or negligible, importance as compared with two outstanding factors. When acid is added to cow's milk in such quantities as are found in buttermilk or in the current popular acid milks, two radical changes take place. The greater buffer value of cow's milk as compared with human milk, resulting from the larger amount of casein and phosphate, is reduced, so that the hydrogen ion concentration during digestion becomes practically identical with that of breast milk digestion. The second change is found in an attenuation of the curd. Recoagulation of acid milk does not occur in the stomach, or, at least, it occurs to a negligible degree, as I have demonstrated elsewhere.[10] To the former of these two effects, Marriott [4] and his followers attribute the major rôle; to the latter, a merely accessory rôle. It is my purpose in the present investigation to attempt an evaluation of the relative importance of these two factors.

There would seem to be two main, simple, obvious routes of attack in such an investigation. One of these Moll [9] pursued in 1905 when he added 3 Gm. of sodium carbonate to each liter of buttermilk, without lessening its effectiveness; in fact, he asserted that the addition was an advantage in weaker infants. Even if one were inclined not to overrate such an isolated observation, especially with a fat free buttermilk, it is still hard for some physicians to keep down the memory of the benefits they thought they saw from lime water, sodium citrate, magnesia magma, potassium carbonate in Mellin's Food, malt soup, Mead's dextri-maltose number 3, and other alkalis that were once more of a routine in infant feeding than is acid today.

The second route would naturally lie in the employment, as a basic food, of a milk that will not coagulate

* From the Children's Memorial Hospital.

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9. Moll: Arch. f. Kinderh. **42**: 327, 1905; Deutsche med. Wchnschr., 1906, number 36.
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in the stomach. This could then be used with and without the addition of an acid and the results compared. Such an experiment ought to give definite information as to the rôle of the acid, and should help in placing the rôle of the curd on a more tangible basis. Of all milk preparations evaporated milk, which is simply whole milk reduced to one-half its volume by evaporation, seemed the most serviceable for our purpose. I think it can be assumed that evaporated milk acts like condensed milk and such dried milks as, for example, Dryco, of which it is known that there is an almost complete arrest of coagulation in the stomach.[10] Boiled milk, unless boiled for a very long time, did not seem serviceable, for boiled milk still forms a fairly large, hard curd in the stomach.[10] Evaporated milk, too, was peculiarly timely because of the recent (1927) paper in which Marriott[4] advocated the use of acidified evaporated milk fortified with about 10 per cent of Karo Corn Syrup.

Restrained, at first, by a feeling of responsibility and of timidity in attempting such an experiment on sick babies, and also by a sugar phobia which I have not yet outgrown, we began by what we considered "playing safe." All of the babies in the wards, none over 18 months and most of them under 1 year of age, were put at one time on simple mixtures of evaporated milk and water in such amounts that they were given what corresponded to from 1 to 2 ounces of whole milk per pound of body weight in the twenty-four hour feeding. The present report deals only with the babies of the winter and spring months. It is the aim of the hospital to admit only very sick infants to the wards because of the fear of respiratory tract infections. Nearly all of the babies, then, were very sick with pneumonia, encephalitis, meningitis, otitis media, empyema, pyelitis and other similar conditions. They were not "feeders" in a restricted sense, though many of them vomited and had diarrhea. If mastoids, per se, played an appreciable part, we did not know it. It was naturally assumed that most of them with severe respiratory tract infections had paranasal sinus involvement, but treatment was not directed toward such involvement except as a part of the underlying infection. On the whole, these babies were not a promising lot, and therefore they were ideal from the standpoint of a therapeutic test of a food in the presence of a parenteral infection.

The real measure of the acceptability of a food for infants is, of course, the general progress of the baby, with the gain in weight as an important factor. Now I want to confess that I still belong to that ancient order of pediatricians who like to count, look at, mash and smell a baby's stool and who feel that they get some useful information as to the baby's condition from each of these activities. The stool is not a full measure of nutrition—it is of digestion. From a pathologic standpoint the immediate result of feeding some thirty consecutive babies, without any selection of cases, was the most startling I have ever encountered in more than twenty-five years of hospital experience in feeding ward babies. The interns had often asked me to show them a normal stool such as I had told them all babies had in private practice and I had had great difficulty in meeting their request. At one swoop I was able to show them normal, yellow, smooth, well formed or thickly pasty stools with a perfect putrefactive bouquet in practically every one of these babies, except in the case of three or four who did not have any stool. The babies, however, did not gain in weight; they even lost considerably in some instances, as was to be expected. When a dextrin-maltose preparation was added gradually there was a somewhat better gain but there was more evidence of indigestion. On the whole the result was quite satisfactory, as I had always felt that the scales were not necessarily of first importance in the early treatment of the acutely sick baby. The ideal food, on the other hand, would be well digested, would maintain a proper gain in weight, and, if concentrated, would overcome the handicap of lack of appetite.

Emboldened by our results so far with evaporated milk and backed by good authority, we proceeded to put all of these and all others as they came into the wards, without selection, up to a total of thirty-three, on a mixture recently advocated by Marriott,[4] for which he claims all of these attributes. To a pint of evaporated milk was added a pint of a stock solution consisting of 3 ounces of Brown Karo Corn Syrup, 5 cc. of U. S. P. lactic acid and water up to 1 pint. This gives a total of 1 quart of whole milk, with an additional 8 or 9 per cent of soluble carbohydrate, a total of 12 + per cent carbohydrate. Because of the lessened buffer in evaporated milk as compared with fresh sweet milk "due to the conversion of a part of the calcium and phosphate into the form of insoluble calcium phosphate"[4] only 1 drachm of lactic acid to each pint is recommended by Marriott as compared with the original 2 drachms and the more recent 1½ drachms when fresh milk is used. Of this mixture the babies were given all they would take every four hours. The result was all that has been claimed and all that could be hoped for, and again such as I had never seen before with any other food. The stools were somewhat softer than on the previous food but were nearly always pasty, or formed, were commonly reduced to less than three a day, and had an appearance, color, consistency and odor that one comes to recognize as characteristic. The gain in weight was better than before—sometimes truly amazing—and, I feel sure, as good as if the babies had been on breast milk.

Having now a therapeutic food to which we could take flight on the slightest provocation, we placed all of these babies and all others as they came in, again up to a total of about thirty, on an identical mixture, merely leaving out the lactic acid. After a total of about thirty was reached, they were again switched back to the same mixture with the addition of lactic acid. This process was repeated several times with varying intervals until a total of 128 tests had been made on more than 100 babies. Of these, sixty-seven tests were made with lactic acid and sixty-one without. In the last test all of the babies were left on the acid free mixture for about three weeks.

As I have said, these babies were taken consecutively as they entered without any selection, except that babies on the breast were not removed from the breast and are not included in this series. Also two very premature babies were given breast milk or condensed milk.

In this relatively small series of cases, nearly all on a parenteral basis, I have not been able to see any tangible difference between those given the lactic acid milk and those given the nonacid milk. This opinion is a composite of the impressions of Drs. Kaufmann and McEnery, the interns, the nurses and myself, based on a careful inspection of the stools, a general lumping of the weights, and an observation of the general progress of the babies. For a time one difference seemed very definite—the babies took the lactic acid milk better. In a general way this is possibly still true, though later it

did not impress us to any extent. The nonacid milk is somewhat unpleasantly sweet—a condition that is rather agreeably overcome by the addition of acid. Possibly, too, the stomach is emptied more quickly with acid milk, with an earlier return of hunger contractions. The stools do not show constant or recognizable differences in the acid and nonacid periods. At one time they were unusually good and about 20 per cent of the babies had none, and I thought that this scored in favor of lactic acid milk until I was reminded that we were in a nonacid period. There were slight variations from one batch of babies to another, but never outstandingly in favor of one mixture over the other. Of the sixty-seven babies given the lactic acid mixture, forty-one gained in weight and one remained the same 62.7 per cent); twenty-five lost in weight (37.3 per cent). In the sixty-one babies given the nonacid milk, there were thirty-four gains and four remained the same (62.3 per cent); twenty-three lost in weight (37.7 per cent). Only two or three times did we feel that a baby on a nonacid mixture should be given the acid milk, once because of vomiting, and again because of lack of appetite. The condition improved after a time but it was impossible to rule out a coincidental improvement in the baby's parenteral condition as a cause of the improvement. At no other time did we feel that the baby would be benefited by a change from nonacid to acid milk, or vice versa, or to any other mixture. This was as true of the younger, sicker babies as of the older ones. While the degree of parenteral infection was often evidently an important factor in the utilization of the food, there were many who had normal stools to the very end of life on either food.

It must be emphasized that this investigation was made during the winter and spring months of 1928 (from January to June 30) and that nearly all of the babies had pneumonia or some other respiratory infection. We expect to continue to carry on the work in the same manner at a time when perhaps more essentially gastro-intestinal disorders may be prevalent or more severe. The present report deals, therefore, almost wholly with parenteral infections—and yet it is exactly these infections, and especially involvement of the mastoids, that have lately been blamed as the major cause of gastro-intestinal disorders with diarrhea. Parenteral infection has always played a part in the diarrheas of infancy, apparently more so in recent years because respiratory infections seem more prevalent and more severe. It has also become more apparent because the "summer complaints" of former years have become less and less important and prevalent—thanks to a dissemination of knowledge about hygiene and the early use of therapeutic foods, the infant welfare agencies and the use of boiled milk. There is, however, still a slight elevation in the incidence of diarrheal disorders in the late summer, when parenteral infections are least frequent; and the results obtained so far, as has been recorded, are not and must not be assumed to apply to that class of cases, even if one were warranted in accepting a common pathogenesis.

While the present series of cases may be relatively small, and the method of control may necessarily be lacking in precision, the results have been so uniform that one feels justified in concluding that in this type of case the acid plays a minor, or even negligible, part in the therapeutic result. If this is true then it is again necessary to assume in the present state of knowledge that the attenuation of the curd may play a major rôle. Theoretically and clinically there is much to support this assumption. It is known that cow's milk is a peculiarly solid food;[10] that it coagulates in large firm masses in the stomach; that these coagula become larger for about two hours by agglutination and continuously and increasingly harder by contraction, and that all digestion is at the periphery only. This is as true of boiled as of raw milk, of diluted as of whole milk, except that in each former case all of the changes are less marked. Nowhere else would one ever venture the opinion that the size and consistency of the ingested bolus, and especially of such a bolus, would not be an important factor in digestion. The habit has recently been acquired of discrediting the casein curd of cow's milk as an important factor in infant feeding largely because all of the therapeutic foods that are now used or ever have been used in infant feeding have one factor in common, consciously, subconsciously or unconsciously, and, so far as I know, only one factor: the normal curd of cow's milk has been reduced in size and consistency so as to approach more nearly that of the infants' natural food. Nowhere is this inconsistency more evident than in the careful scrutiny to which pediatricians have always subjected the relatively insignificant curd of protein milk, holding the bottle up to the light to be sure that the mixture was as smooth and grainless as possible, because it was known, as Finkelstein had said, that if it was "grob körnig" (coarse grained) "so bleibt der Erfolg weg" (the therapeutic result is not obtained). How else, moreover, except by the like effect on the curd, can the fact be explained that alkalization of infant foods was even more popular at one time than is acidification today. The buffer has been increased and reduced—the curd has always been reduced.

For fear of misinterpretation, I should like once more to emphasize that no general deductions are made, or warranted, from this as yet limited investigation as to the relative rôle of the acid, as acid, in infant feeding. The only deduction warranted would seem to be that the general run of infants under 18 months of age in the Children's Memorial Hospital during the winter and spring of 1928, when parenteral infections, chiefly of the respiratory tract, were very prevalent, did not show any appreciably different reaction to acidified and nonacidified evaporated milk that had been diluted one half and fortified with 10 per cent Karo Corn Syrup.

A final word about evaporated milk. About seven or eight years ago I[11] wrote, "I am convinced that in the future some form of dried or evaporated milk will have an increasing usefulness in the feeding of babies, a usefulness that may exceed our present expectations." This prophecy, if one may judge from the literature,[12] seems about to be fulfilled. It was based on practical experience with such foods and also on the theoretical consideration that if the casein curd was an important factor in infant feeding it was as logical to step from boiled milk to dried or evaporated milk as it had been from raw milk to boiled milk, if there was no demonstrable inferiority in such milk as compared with fresh milk. No such inferiority has as yet come to light that cannot apparently be neutralized by the use of orange juice and possibly of cod liver oil (or activated ergosterol), which form today, under any circumstances, and with the use of any kind of milk, an essential part of every infant's dietary.

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11. Brennemann, Joseph, in Abt's Pediatrics, Philadelphia, W. B. Saunders Company 2: 746, 1923.
12. Marriott (footnote 4). Kerley, in Abt's Pediatrics.

QUARTZ LAMP THERAPY IN HUMAN RICKETS AND RACHITIC SPASMOPHILIA

EFFICACY OF SINGLE WEEKLY EXPOSURES *

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The observation that we [1] made in one of our studies of last year in connection with the pathogenesis of rachitic spasmophilia, which showed that a single exposure of human low phosphorus rickets to mercury vapor quartz lamp ultraviolet rays caused the development of healing which continued, in a moderate degree, for a period of sixty-one days, made us realize that probably the different schedules for exposures in use at present in the treatment of rickets and rachitic spasmophilia are unnecessarily heavy. We were in a way prepared for this conclusion by the experience obtained from our work with cod liver oil, which taught us that much smaller doses of the material than those ordinarily given are adequate for the cure and prevention of rickets. One might imagine, too, that exposing infants and children to excessively large doses of ultraviolet rays might in some manner be harmful.

Our main object, however, in the present investigation was, for reasons of simplification and of economy, to attempt to find the approximately minimal dose of ultraviolet rays as produced by the quartz lamp which, with exposures given once weekly, will cure rickets within the customary time period. We came to the conclusion that probably the most practical method was to use an erythema unit as the basic dose. This we determined by using the method of Rost and Keller.[2] We chose as the distance of the lamp from the patient 80 cm., and subjected the solutions prepared according to the requirements of Rost and Keller to the quartz lamp used by us until the reaction became positive. The lamp that we used produced this change at the end of ten minutes during the beginning of our experiment and at the end of twelve minutes toward the close. In other words, it required ten minutes at a distance of 80 cm. to produce Rost and Keller's erythema unit. All of the infants exposed in this study were colored except one. This white infant reacted with a decided erythema, which, however, was not followed by desquamation. The cutaneous response of this infant was very similar to the one observed a year ago in the infant already referred to, who happened to have been exposed to the quartz lamp for exactly the same time period and at exactly the same distance.

In the colored group a faint pinkness was recognizable in some, and in others no perceptible change in skin color was evident. The degree of natural pigmentation varied to a certain extent among the members of this group, and this probably accounts for the difference in the degree of erythema produced in the individual members of the groups.

We began our observations by giving one erythema dose to each child once a week on either the anterior or the posterior surface of the body. At the next weekly treatment the opposite side of the body was used. Beginning healing was recognized in the roentgenogram in these cases at the end of from two to four weeks, and complete healing occurred in from five to eleven weeks, depending on whether the rickets was of a milder or severer type. It was our impression that the healing produced in the seven infants of our group 1, as shown in the accompanying table, was not quite as rapid as the healing that we had observed when feeding infants cod liver oil in the form of S. M. A. For this reason, and also because the erythema produced in the colored infants was so slight, we decided to double the dose by exposing at each weekly treatment both the anterior and the posterior surface of the body at 80 cm. for ten minutes. In other words, once each week an erythema unit dose was given both to the front and to the back, or a net total exposure of twenty minutes at 80 cm. The results obtained with the latter method of exposure in our second group of six infants, shown in the table, seem to us to have been better than those obtained with our first schedule and group, and as good results as those secured with the ultraviolet schedules ordinarily used. One member of the second group was a white infant and it received at the first treatment an erythema dose both to the front and to the back, with a resulting decided erythema both anteriorly and posteriorly. Thereafter, however, at each succeeding treatment one-half erythema unit dose was given to both front and back; in other words, the infant was exposed at 80 cm. for five minutes while lying on its back and at the same distance for the same time period while lying on its abdomen.

The accompanying table gives in detail a record of the observations made. Roentgenograms were taken weekly throughout both periods. Calcium and phosphate determinations were made at the beginning and at the end of both periods, and on an average every three weeks (from two to four weeks) in between whenever the periods were long enough.

The hospital diets of all the infants were the same; namely, orange juice and one-half milk, one-half skim milk, 5 cc. of lactic acid per liter, with enough carbohydrate to meet the caloric requirements of the individual infants.

Patients 1, 2 and 5 and patient 9, listed in the table, received for varying periods of time 4 Gm. of ammonium chloride daily during the "before treatment stage." This dosage was given in the first two in order to change the spasmophilia from the active to the latent stage and in case 5 because of an error in diagnosis, a severe pertussis inspiratory crow being the cause.

Patients 4, 6 and 7 and patients 12 and 13 did not receive any ammonium chloride, which fact explains their lower cathodal opening contraction levels during the "before treatment stage." In these patients, neither the active nor the latent spasmophilic symptoms (laryngospasm, carpopedal spasm) were increased by the exposures to the quartz lamp as one might have expected from reports of Huldschinsky,[3] Kroetz,[4] Falkenheim and György [5] and others. In other words, our experiences coincide with those of Furst, who found that mild quartz lamp light doses (from six to ten minutes and at 100 cm.) did not increase the spasmophilic symptoms but rather caused them to disappear

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1. Gerstenberger, H. J., and Hartman, J. I.: Observations on Rachitic Spasmophilia and Low Calcium Rickets, Tr. Am. Pediat. Soc. **39**: 51, 1927.

2. Rost and Keller in Bach, Hugo: Bestrahlung mit Quarzlampe "Künstliche Höhensonne," editions 16 and 17, p. 42.

3. Huldschinsky, Kurt: Die Behandlung der Rachitis durch Ultravioletbestrahlung, Ztschr. f. orthop. Chir. **39**: 426, 1920.

4. Kroetz: Biochem. Ztschr., numbers 1 and 2, p. 151.

5. Falkenheim, C., and György, P.: Zur Bestrahlungs therapie der Tetanie, Jahrb. f. Kinderh. **107**: 201 (Nov.) 1924.

within a few weeks. In our cases treated solely with quartz lamp exposures, the cathodal opening contraction was greater than 5 at the end of one week in one case; at the end of one and one-half weeks in two cases; at the end of two weeks in one case, and at the end of three weeks in one case, while those receiving ammonium chloride in daily doses of 4 Gm. did not do as well, one reaching the stage of cathodal opening contraction greater than 5 in one week and two in three weeks. These observations, in our opinion, in no way lessen the need for and the therapeutic value of calcium chloride, ammonium chloride and magnesium sulphate during the active stages of spasmophilia.

We believe that the advantages of this method of quartz lamp ultraviolet therapy are the following:

1. The number of exposures is reduced to one a week.

2. The erythema produced by the doses employed by us in the manner outlined for both colored and white infants is so slight that the skin is quite as ready to benefit from the second exposure as it was from the first. The same protection of the skin obtained for colored infants can be secured for fair-skinned white infants without decreasing the efficacy of the therapy below a satisfactory level by reducing the exposure to one-half erythema unit dose. For white infants of darker hues, somewhat more than half the erythema dose and somewhat less than the full unit erythema dose may be necessary.

We believe that it is not practical to expose in infants a limited part of the body surface. Such a procedure requires the painstaking attention of an attendant, whereas the infant when placed either on its back or on its abdomen usually remains in this position without restraint or much supervision. Furthermore, as the dose required to produce satisfactory therapeutic results changes the skin so slightly there is really no need for making the time interval of exposure of the skin greater than that adopted by us.

CONCLUSIONS

1. Observations in thirteen rachitic and spasmophilic infants show that weekly exposures to the ultraviolet rays produced by the quartz lamp in doses of 1 erythema unit as determined by the method of Rost and Keller for colored infants, and less for white infants to both front and back, bring about healing in practically the same time required by the heavier schedules at present generally used.

2. Because of the simplicity and economy of this arrangement and because of the slight change that is produced by such exposures to the skin, the adoption of this schedule as a routine procedure in the cure and prevention of rickets and rachitic spasmophilia by the employment of the ultraviolet rays is recommended.

3. No increase in spasmophilic symptoms and no lengthening of the time period at the end of which the cathodal opening contraction level was greater than 5 were observed in rachitic infants manifesting spasmophilic symptoms as a result of the use of the quartz lamp schedule followed by us.

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Rickets and Rachitic Spasmophilia Treated with Mercury Quartz Vapor Lamp

Time, 10 Minutes; Distance, 80 Cm.; Frequency, Weekly.*

				Period Before Treatment						Period After Treatment					
											X-Ray				
Name	Color	Age, Mo.	Rickets	Duration, Wk.	Blood Wk.	Blood Ca	Blood P	Duration of X-Ray Healing, Wk.	C.O.C.	Progressive Healing at Beginning of Treatment	C.O.C. >5, Wk.	Beginning Healing, Wk.	Complete Healing, Wk.	Blood Wk.	Blood Ca	Blood P
1. M. H.	Colored	2	Mild	10	1	6.5	5.9	4	3	No	3	3	6	3	9.6	6.3
					10	7.6	4.4							6	12.6	7.0
2. A. C.	Colored	7	Mild	5	1	4.3	5.5	3	4	No	3	2	5	2	9.1	6.6
					5	6.4	4.5							4	9.6	6.2
3. G. G.	Colored	12	Marked	10	1	7.2	2.2	7	>5	No	..	3	11	3	9.3	4.0
					7	9.6	2.4							12	9.9	5.0
4. E. W.	Colored	12	Moderate	8	1	5.3	5.1	None	3	No	3	4	8	2	7.3	5.0
					6	6.4	4.1							8	10.6	6.8
5. J. H.	Colored	8	Moderate	5	1	8.8	1.6	4	>5	No	..	4	7	2	9.7	3.5
					3	8.7	1.7							6	10.6	5.0
6. P. N.	Colored	17	Mild	4	1	8.9	4.0	..	2	Yes	1	..	5	5	10.2	6.9
					4	6.3	4.8									
7. J. O. B.	Colored	24	Marked	3	1	9.0	5.8	..	2	Yes	2	..	12	3	6.9	6.5
					3	5.2	6.2							12	8.9	7.2
8. R. L.	Colored	9	Marked	8	1	8.9	2.3	None	>5	No	..	3	8	3	10.2	3.2
					8	10.0	1.6							8	10.1	5.0
9. C. C.	Colored	10	Mild	5	1	6.1	5.4	None	4	No	1	2	5	2	9.2	6.0
					4	6.3	4.5							5	9.5	6.1
10. R. R.	Colored	5	Moderate	4	1	8.2	2.4	2	>5	No	..	2	5	2	10.6	5.6
					3	8.0	3.5							5	10.7	5.7
11. R. H.	Colored	4	Moderate	1	1	10.3	3.7	None	>8	No	..	3	6	2	10.4	4.4
														6	10.8	5.9
12. W. R.	Colored	5	Moderate	..	1	6.0	3.4	..	1	Yes (?)	1½	3	6	2	7.9	4.8
														4	10.0	5.6
13. J. M.	White	9	Moderate	..	1	6.3	3.4	..	1	Yes (?)	1½	3	6	2	7.5	5.1
														4	10.0	6.8

* Patients 1-7 (group 1) were exposed front and back on alternate weeks; 8-13 (group 2) were exposed front and back weekly.

Frequency of Spinal Cord Tumors.—Spinal cord tumors are of less frequent occurrence than tumors of the brain and are recognized in the ratio of about one spinal cord tumor to about six tumors of the brain. There is no doubt that this ratio will be changed as we become as familiar with cord tumors as we are with brain tumors. The ratio of spinal cord tumors to tumors at large is about 1:50. In many cases the pain, which is the presenting symptom in the large majority of cases, is attributed to neuralgia or neuritis, or rheumatism if the pain is around some joint. Angina, gallbladder disease and disease of some other abdominal organ have been held accountable for the pain of cord tumors, and it is not infrequent that abdominal operations are done on these mistaken diagnoses.—Hayes, H. J., and Semmes, R. E.: Spinal Cord Tumors, *J. Tennessee M. A.*, December, 1928.

PEPTIC ULCER OF THE ESOPHAGUS*

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Of the various ulcerative diseases of the esophagus one kind has been termed "peptic" because of the close similarity of its postmortem aspect to that of peptic ulcer of the stomach. All of the recorded cases are based on a diagnosis made only at autopsy. The development of esophagoscopy to the degree of perfection that permits of examination of the esophagus in any patient in a few minutes, without any anesthetic, general or local, has rendered practical the study and the diagnosis of this disease in the living and has rendered its local treatment quite simple. Therefore, it may be said that a new era has begun in the study of this disease.

INCIDENCE

Peptic ulcer has been diagnosed in eighty-eight out of more than 4,000 cases of esophageal disease in forty-two years of my experience. Of these eighty-eight cases, twenty-one were active ulcers and sixty-seven were scars probably due to preceding peptic ulcers. This, however, is not a sound basis on which to estimate the infrequency of the disease, because until recent years few opportunities have been afforded for esophagoscopy, and when done at all it has been only in the presence of symptoms of esophageal obstruction. Peptic ulcer of the esophagus is for a long time not obstructive and the symptoms are erroneously considered gastric. When the time shall have come when every patient with the slightest discomfort or abnormality in swallowing, every patient with pain or discomfort back of the sternum, every patient with gastric hematemesis, every patient with regurgitation, "heartburn" or "waterbrash" is examined esophagoscopically, peptic ulcer of the esophagus will be found less rare than it is now thought to be, though it is probably not a common disease.

ETIOLOGY

The word "peptic" applied to esophageal ulcer would seem to drag in all the etiologic factors, and, it might be added, all the etiologic controversies of peptic ulcer of the stomach. Doubtless most of the factors, accepted and disputed, are worthy of consideration in a study of peptic ulcer of the esophagus; but they are too well known to require even enumeration here. Coexistent gastric ulcer in some of the cases would suggest the possibility of a cause common to the two. As has been so clearly pointed out by Rehfuss,[1] it is necessary to consider two classes of causes: (1) those that produce the acute ulcer, and (2) those that perpetuate the acute ulcer into the chronic form in which it is usually encountered. Doubtless the same is true of esophageal ulcer.

The Causes of Acute Ulcer of the Esophagus.—The trend of opinion of gastro-enterologists toward infection as a cause of gastric ulcer led me to review the histories in our cases of esophageal ulcer in a search for data bearing on infective foci. Fortunately our routine of fully recording the condition of the mouth, teeth, nose and throat of every patient enabled me to obtain interesting and almost complete data. Of the twenty-one patients with active peptic esophageal ulcers, nineteen (90 per cent) had evidence of a chronic infective focus. In the two others, no infective foci were found; the patients both had very unclean mouths, however, with large accumulations of septic materials about the teeth, though the roentgen examination did not reveal any peridental focus. Of the nineteen patients there was more than one focus in seventeen (89 + per cent). The tonsils were diseased in fifteen (71 + per cent). There was disease of the nasal accessory sinuses in seven (33 + per cent). In six (28 + per cent) there were infective foci at the roots of the teeth. In the sixty-seven cases in which the diagnosis of healed peptic ulcer had been made, the results of the search of our clinical records for data bearing on focal infections revealed similar results. Of the sixty-seven patients, fifty-nine (88 + per cent) had tonsillar disease or had had a tonsillectomy; three of the remainder had carious teeth or foul mouths. This made sixty-two (92 + per cent) out of sixty-seven who had evidence of focal infection. When the two classes of cases are combined, there is evidence that eighty-one out of eighty-eight (92 + per cent) patients with peptic ulcer of the esophagus had signs of focal infections in the tonsils, teeth or nasal sinuses. These observations in the records were so striking that it seemed advisable to obtain data for control. For this purpose our cases of suppurative disease of the lung would not serve because these patients almost all have or have had focal infections in the tonsils, teeth or sinuses. Cases of foreign body, on the other hand, being mere accidents, would give a fair average incidence of focal infections unrelated to the condition for which the patient was admitted.

Of the eighty-eight patients over 18 years of age with foreign bodies in the air and food passages, eleven (12 + per cent) had tonsillar disease or had had tonsillectomy; three (3 + per cent) were recorded as having sinus disease without tonsillar disease. This made fourteen instances of evidence of focal infection in eighty-eight persons practically selected at random (15 + per cent). Due allowance being made for the fact that possibly the patients with foreign body were not studied as closely for focal infections as were those with peptic ulcer of the esophagus, nevertheless the contrast between the incidence of focal infection in 92 + per cent of patients with peptic ulcer of the esophagus, as compared to evidence of similar foci in 12 + per cent of persons practically selected at random, is overwhelmingly in favor of focal infection as the chief cause of peptic ulcer of the esophagus.

Perpetuation of Acute Ulcer.—In the case of gastric ulcer the perpetuating factor resulting in chronicity is commonly accepted as the gastric juice. Peristalsis and other factors are considered supplementary.

Retrograde Flow of Gastric Juice.—When one comes to apply the chief perpetuating factor in gastric ulcer to the etiology of peptic ulcer of the esophagus, one is at once confronted by the fact that food and the gastric juices as composed during active digestive processes do not constantly and normally bathe the thoracic esophagus, even at its lowermost end. That a retrograde flow may occur in normal persons is undoubted, and that it does occasionally occur in every one seems probable. It certainly is the active cause of the characteristic pain of peptic ulcer of the esophagus whether it has originally caused the ulceration or not. The unproved theory that peristalsis is the cause of the pain of gastric ulcer seems illogical as well as unproved, as applied to the esophagus. Malfunction of the stomach, hour-glass deformity, pyloric stenosis, hepatic disease,

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 13, 1928.

1. Rehfuss, M. E.: Diseases of the Stomach, ed. 2, Philadelphia, W. B. Saunders Company, 1927, p. 578.

and duodenal and other intestinal disorders are conceivable causes of retrograde flow, but our records of cases of peptic ulcer of the esophagus do not afford corroborative evidence of them as important etiologic factors.

Preventriculosis (so-called cardiospasm).—This furnishes strong evidence that something other than irritation and stasis is necessary for the causation of peptic ulcer of the esophagus. When one considers the prolonged irritation and maceration of the mucosa of the esophagus from the retention, for days and even weeks, of fermenting foods, in so-called cardiospasm, it is remarkable that in 287 very severe cases of this disease that we have studied esophagoscopically not one case of peptic ulcer was found. Erosions were common. There was one case, in an early stage, with slight peptic esophageal ulcer, but it seemed probable that the ulcer had antedated the incoordination of the diaphragmatic pinchcock, and that the two diseases were unrelated.

Insufficiency of the Cardia.—Given as a cause in the older textbooks, this condition is at once excluded from consideration here because there is no sphincteric action, sufficient or insufficient, at the anatomic cardia. Kinking of the abdominal esophagus is slightly obstructive of the retrograde flow of the gastric contents into the esophagus; but the true proximal sphincter of the stomach is the diaphragmatic pinchcock.

Insufficiency of the Diaphragmatic Pinchcock.—It is curious to note in all of the cases hitherto reported, chiefly autoptic, that insufficiency of the cardiac sphincter was stated as a cause apparently on purely theoretical considerations, notwithstanding the fact that there was no anatomic basis demonstrable in the way of the existence of a cardiac sphincter, sufficient or insufficient. As the sphincteric action preventive of regurgitation of the stomach contents is at the diaphragm and not at the cardia, the theory of insufficiency, if applied at all, must apply to the diaphragmatic pinchcock. None of our patients with peptic ulcer of the esophagus were found to have any abnormal patulousness at either the diaphragmatic pinchcock or the cardia. On the other hand, in patients with abnormal patulousness and in some instances hernia of the stomach through a large deficiency in the hiatus oesophageus, no ulceration or even irritation of the mucosa was noted.

Islands of Gastric Mucosa.—The presence of islands of gastric mucosa in the lower end of the esophagus is probably a factor, but that it is an essential factor is unproved. Even if no islets were to be found at autopsy it could not be proved that one did not originally exist at the site of the ulcer which had completely destroyed it. If the islands are present in all cases it still remains undecided whether the aberrant gastric mucosa is passively etiologic by reason of supplying vulnerable tissue or actively by the peptic and especially the oxyntic secretions of its glandular elements. That the pain in peptic ulcer of the esophagus is due to regurgitated acid secretions from the stomach seems certain; but this does not imply that the ulcer was caused by such regurgitations. The ulcer, whatever its cause, would be sensitive to acid contact. Moreover, it seems probable that slight retrograde flow of gastric contents occurs unnoticed occasionally in every human being. That the acid could be produced in the esophagus itself is not impossible in view of the fact that islets with ventricular glandular structure, columnar and hydrochloric acid-producing cubical cells have been found to exist in the esophagus. This has been true in seven of our twenty-one cases of peptic ulcer at the bronchoscopic clinics. Islands of gastric mucosa have also been found involved in the lesion in ten of our cases of esophageal cancer. Peptic ulcer of Meckel's diverticulum may be associated with the presence, in the diverticulum, of gastric columnar and cubical cells; but ulcer here could not be attributed to a retrograde flow of acid gastric contents. The now clearly proved selective gastrotoxic action of bacteria, toxins and even chemicals and drugs (Rehfuss), when introduced in various ways, renders of utmost importance the presence of islets of gastric mucosa in the esophagus in the etiology of peptic ulcer of the esophagus.

SYMPTOMATOLOGY

Pain back of the lower half of the sternum and extending through to the back between or under the shoulder blades is the most constant and significant symptom. It greatly exceeds in severity the pain of cancer in the same location. Slight tenderness to the passage of food may be present, and persistent pain may start on swallowing; but in almost all our cases the pain came on a half hour or longer after eating, in some cases only after the heartiest meal of the day, dinner in the evening. In these cases the pain would last all night unless stopped by the taking of alkali. There seems little reason to doubt that the pain is due to contact with acid secretions, and it seems probable that, in most cases at least, the acid secretions have been regurgitated from the stomach, though this does not imply that the ulcer itself has resulted from hiatal insufficiency. The acid may possibly have been produced from the cells in esophageal islets of gastric mucosa, though this seems unlikely. The prompt relief following the taking of alkalis is so marked and so constant as to justify the conclusion that pain is due to acid. The onset time in relation to the intake of food is significant. Peristalsis does not seem a factor in esophageal pain.

"Heartburn," "waterbrash" and similar subjective sensations were present in about three fourths of our cases.

Hematemesis and melena were noted in a number of our cases. They appeared in the recent as well as in the long standing cases. "Coffee-ground" and liver-like particles in the vomitus were present in a few instances. Collapse and death from loss of blood occurred in one case.

Odynophagia is a usual but not a constant symptom, nor is it constantly present in any case. About half of our patients could feel the bolus of food pass a tender point and in some the pain continued until it was stopped by the taking of an alkali. It was the slight sense of pain due to the passage of food that led to the patient being sent to the clinic for the detection of the supposed foreign body. The ulcer in these cases was old and peptic in character, evidently having originated long before the subjective sensation of pain.

Dysphagia is not present in the early stages of peptic ulcer of the esophagus. In the cases we have seen in an early stage of the ulcer, the esophagoscopy was not done because of difficulty in swallowing. Half of our patients with peptic esophageal ulcer had no symptoms referable to the esophagus, and four of the twenty-one had no symptoms of any kind until a short time before, notwithstanding the ulcers were quite evidently of long duration.

Vomiting at times is usually present. It was noted in eleven of our cases and was especially frequent in those in which the ulcer involved the hiatal constriction.

The vomitus was mixed with blood in ten of the cases but there was only an occasional streak in most instances. Regurgitation was present in a few cases.

ESOPHAGOSCOPIC APPEARANCES

The chief characteristics, broadly stated, are the flatness of the lesion, the absence of annular infiltration of the esophageal wall, and the absence of exuberant fungations.

In the early stages, the flatness of the lesion and the absence of infiltration are well marked (1, in the accompanying illustration). Later the edges become somewhat raised, and, still later, slightly undercut (2, in the illustration). In only two cases out of twenty-one did I get that "roll-rim" effect that the endoscopist gets in gastric ulcer. In no instance were there found the fungations usually seen in cancerous ulceration. In three cases a fungating lesion appeared on the edge of a scar and in all of these histologic examination of the esophagoscopically removed fungations showed them to be cancerous implantations. The esophagoscopic view in one of these patients is shown at 6.

There is usually a zone of contrasting intense hyperemia around the rim of the ulcer. The bed may be covered with yellowish exudate (7). If this is absent or wiped away, a bleeding granular bed may be seen. The bleeding, if present, comes from this ulcer bed, not from exuberant fungations as in cancer.

In three out of our twenty-one cases, the lesion was multiple. The size varied from about 14 mm. in greatest diameter to about 3 mm.

The ulcer in most cases was elongated, but five were round. In determining form, care was taken to eliminate error from the foreshortening of the perspective.

DIAGNOSIS

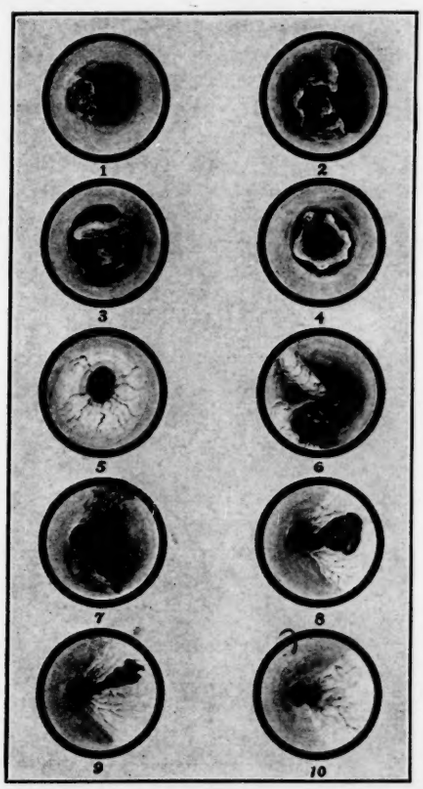
Deductive methods of diagnosis, unreliable anywhere, have no place whatever in the diagnosis of disease of a viscus so easily and safely inspected as the esophagus. The bougie, an inferential means, is useless and dangerous. The roentgen examination, of fundamental importance in all other esophageal diseases, is usually negative in peptic ulcer. In a number of our cases this has obviously been due to the flatness of the ulcer as revealed by esophagoscopy. Possibly also the overlapping of diaphragmatic and hepatic shadows may add to the technical difficulties. An ulcer of long standing may show a filling defect but the niche of gastric ulcer was absent in all of our cases, notwithstanding close scrutiny of the shadows at the level of the ulcer as demonstrated esophagoscopically. The cicatricial sequel of a peptic ulcer may show roentgen evidence of stenosis. Not only for this reason but for other obvious reasons roentgen examination should precede diagnostic esophagoscopy in every case. The mention of the fact that ulcer of the esophagus often does not show on roentgen examination is intended only as a warning against excluding peptic ulcer on the basis of a negative roentgen report. The esophagoscopic appearances and biopsy are the important diagnostic means.

In every patient with symptoms of gastric ulcer in whom the diagnosis is not confirmed by the roentgen ray and by the other diagnostic means familiar to the gastro-enterologist, esophagoscopy to exclude esophageal ulcer is indicated to determine the presence or absence of peptic ulcer of the esophagus.

Typhoid.—The esophageal ulcers of typhoid are at a higher level (postcricoidal) and usually do not persist long after the convalescent period.

Cancer.—The characteristic esophagoscopic appearances of cancer are infiltration and fungation. Bleeding fungations appear sooner or later; polypoid masses are common.[2]

Syphilis and Tuberculosis.—As with ulcerative lesions everywhere in the body, syphilis and tuberculosis should be excluded by the usual means in every case of ulcer of the esophagus. Primary tuberculosis in the esophagus is quite superficial, looks whitish or grayish, and is not surrounded by a red zone. Tuber-



Esophagoscopic appearances of peptic ulcer of the esophagus: 1. Peptic ulcer in the acute stage. The lesion is flat; the edges are somewhat granular. There is a quite red zone surrounding the ulcer, about 1 or 2 mm. back from the edge. Diagnostic esophagoscopy was done because of retrosternal pain. There was no dysphagia.

2. The same patient as in illustration 1, one year and two months later. The ulcer has deepened somewhat, and is bleeding freely. Patient had no dysphagia and only slight odynophagia, but felt severe pain immediately after dinner.

3. Ulcer of the abdominal esophagus and stomach. The symptoms were of gastric ulcer, including characteristic pain. Diagnostic esophagoscopy was done because the pain persisted after the gastric ulcer had apparently healed.

4. Girdling peptic ulcer covered with a membranous, yellowish exudate which could be peeled up at its edges, showing a flat bleeding surface. Pain came on after the evening meal every day, but could be relieved by taking sodium carbonate.

5. The same patient as in 4, as seen three years later. The annular cicatrix is the result of ulceration which has healed. The ulcerative stage had probably lasted for more than a year and a half.

6. At the left of the field is seen a scar with a cicatricial roll at its upper margin that is almost keloid in form. At the lower margin is a small fungation that had the esophagoscopic appearances of cancer. This fungation was removed esophagoscopically, and was found, on histologic examination, to be squamous cell epithelioma. The history justified the inference that the scar had resulted from a peptic ulcer of the esophagus of many months' duration, and that it had healed a few years prior to the patient's coming under our observation.

7. The triangular area at the right represents a peptic ulcer in the esophagus of a man previously supposed to have cancer. The ulcerated area was covered with a yellowish exudate. A specimen esophagoscopically removed from the edge of the ulcer showed gastric cells, though the ulcer was 6 mm. above the diaphragm. It was evidently an island of gastric mucosa.

8. The same patient as in the preceding illustration, as seen two years later. The ulcer has begun to heal, the triangular zone has diminished in size, and is covered with small, bright red granulations.

9. Four months later. The granulating area has still further diminished in size.

10. The ulcer is seen to be completetly cicatrized. The scar is white, showing fine red streaks where small vessels are located. This was the appearance nearly five years after the ulcer was first seen esophagoscopically.

2. Jackson, Chevalier: Carcinoma and Sarcoma of the Esophagus, Am. J. M. Sc. **169**: 625 (May) 1925.

culous invasion by suppurating glands looks more like peptic ulcer but usually it is located at a much higher level (near the bifurcation of the trachea) than peptic ulcer.

Actinomycosis.—As a cause of an ulcerative lesion of the esophagus, actinomycosis is rare, but its character can be readily demonstrated by biopsy.

Blastomycosis.—Blastomycosis of the esophagus presents a granular, an eroded or a whitish appearance that is quite different from the clearly cut loss of substance seen in peptic ulcer. Biopsy is necessary for diagnosis.

Cicatrices.—In making a diagnosis as to the cause of scars found, one is justified in attributing them to peptic ulcer when they are located close to the hiatus oesophageus provided there is no history of a corrosive substance having been swallowed.

Biopsy.—This is the final arbiter. The specimen should be taken from the edge of the ulcer; this will show the transition from the pathologic to the relatively normal and cancer can be thus excluded with certainty. Moreover, the taking of a specimen at the edge is safe because in the inflammatory rim no vessels are likely to be encountered. The autopsies reported in the literature show that the perforations into vessels have not occurred in the superficial edge of the rim. A specimen taken in this way under the guidance of the eye, and failing to show evidence of a malignant process, is conclusive as to the primary process; it would not preclude the possibility of cancer developing as secondary, but only one case of cancer secondary to peptic ulcer has been recorded at the bronchoscopic clinics. In this case the cancerous process developed in the scar left after healing of the ulcer.

PROGNOSIS

Of the twenty-one patients in my experience, one died of spontaneous hemorrhage, five were untraceable, twelve recovered and two are still under treatment. The longest duration after the diagnosis was made was five years; at the end of this time the ulcer had healed. One of the patients has now been under treatment three years and the other four years. In both these patients the ulcers are healing. In addition to the twenty-one patients just mentioned, in sixty-seven other patients scars at the lower end of the esophagus were attributed to peptic ulcers that had healed. It would seem justifiable to say that healing usually takes place ultimately but not promptly under esophagoscopic treatment, combined with dietetic management by the gastro-enterologist. A scar always remains, but stenosis does not occur unless the scar involves most of the circumference of the esophagus.

That the disease is a rather serious one cannot be questioned; but it must be remembered that the cases reported in the literature are almost all based on a diagnosis made only at autopsy, and in most of them death was due to perforation of the ulcer. Until the advent of the esophagoscope there was no method of making a diagnosis during life. No one knows how many patients had the disease without dying of it. The era of esophagoscopy on which physicians are just entering will doubtless alter the statistics by recording other than fatal cases, a class previously unrecorded. In the literature the recorded autoptic cases clearly include some instances of fatal perforation of the ulcer bed by a blindly passed bougie, and in two instances there was probably no ulcer but rather a granulating wound following a slowly fatal perforation by the bougie. Most of the deaths in the recorded cases were due to spontaneous perforation into the pleura or into a large vessel.

TREATMENT

The most important treatment is the elimination of foci of infection. Next in importance are direct endoscopic applications to the ulcer. Silver nitrate in solution not stronger than 10 per cent on an esophagoscopic swab, once weekly, with interim applications of bismuth subnitrate by esophagoscopic insufflation is the best form of local treatment in our experience. Crystalline bismuth subnitrate in small doses, dry on the tongue, should be also given at frequent intervals. Dietetic treatment as in gastric and duodenal ulcer is probably indicated, and it is important to avoid all mechanically irritating rough foods. All food should be well masticated and should be taken in small bolus. Granular foods, cereals and rough vegetables should be avoided for mechanical reasons. All liquids should be taken in sips rather than gulps. As malfunction of the stomach is possibly one of the factors in regurgitation, general and dietary management of the patient by the gastro-enterologist is absolutely essential for cure.

Prophylaxis consists in the discovery and elimination of foci of infection wherever found.

CONCLUSIONS

1. Deductions from eighty-eight cases of peptic ulcer of the esophagus suggest focal infection as the chief etiologic factor, with the tonsil as the most frequent site of the focus. Islands of gastric mucosa are accessory causes. Retrograde flow of gastric juice may or may not be a perpetuating etiologic factor, but it is certainly a cause of the pain.

2. The most characteristic symptom of peptic ulcer of the esophagus is retrosternal pain or discomfort extending through to the back. Chronic esophagitis is accompanied by the same symptoms, but of less severity. Ulcer may be symptomless.

3. The diagnosis of the peptic ulcer can be certainly made only with the esophagoscope.

4. Esophagoscopy for diagnosis is indicated in every patient complaining of the slightest abnormality in swallowing or the slightest degree of retrosternal pain or discomfort.

5. The best treatment of peptic ulcer is by eradication of focal infection, plus the local esophagoscopic application af argentic nitrate, or bismuth subnitrate. Palliative control of the symptom, pain or discomfort is afforded by alkalis, especially sodium bicarbonate. Opiates are unnecessary and are contraindicated.

235 South Fifteenth Street.

Plants and Eczema.—The external causes of eczema are innumerable. They include vegetable, animal and other chemical as well as many mechanical irritants. One must always be on the lookout for vegetable irritants as the cause of eczema. The number of plants and their derivatives that will produce eczema in susceptible individuals is surprisingly large. The Bureau of Plant Industry of the United States Department of Agriculture has furnished a list of 113 of these irritant plants, and this does not include all that are known. They range from poison ivy and crowfoot to such attractive, succulent, useful and apparently harmless things as primroses, fox-eye daisies, tomatoes, asparagus, and Chinese lacquer. We are constantly learning of new plants that produce eczema at times. So, in such cases, it is necessary to be suspicious of practically all sorts of plants, and, in uncertain cases, to warn patients against contact with all plants.—Pusey, W. A.: Our Changing Knowledge of Eczema, *Pennsylvania M. J.*, December, 1928.

STERILIZATION WITHOUT UNSEXING

I. SURGICAL REVIEW, WITH ESPECIAL REFERENCE TO 5,820 OPERATIONS ON INSANE AND FEEBLE-MINDED IN CALIFORNIA *

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NEW YORK

When a lawmaker asks a physician, or when a legislature asks a state medical society for advice on sterilization of the unfit, is an answer ready? It is not. If an answer is made, it can only be of that guess-stuff called opinion—not facts built on follow-up, not technic compared and put to test.

The voluminous literature is based on scanty experience in any one place. For this reason, the committee particularly welcomed an opportunity to see at close range the unpublished work of California, where more elective sterilization has been done than in all the rest of the world together. There, public opinion made its choice twenty years ago between lifelong segregation at the expense of the community, and sterilization for those mentally afflicted or defective who are yet able to support themselves or whose families are able to care for them. Between 1909 and 1928, 5,820 citizens were sterilized, of whom 3,232 were men, 2,705 being insane and 527 feebleminded, and 2,588 were women, 1,792 being insane and 527 feebleminded.

A far-sighted citizen, Mr. E. S. Gosney of Pasadena, has organized a survey of the results thus far obtained, which has been under way for nearly three years.

During February, 1928, at Mr. Gosney's request, and at his expense, and through the courtesy of the superintendents of the institutions, I visited California state hospitals to report on the procedure of the medical decisions and on the technic of the surgery. The consideration given to the individual patient and the skill in operative work seem to me to make the experience in this state very weighty evidence on the whole problem. In the present abridged report, only a brief comparison can be made of methods observed and of suggestions submitted.

STAFF CONFERENCES ON PATIENTS

In these California state hospitals, after a patient has been studied, his case is taken up by the full staff at a regular weekly or semiweekly staff meeting, called a clinic. The family record, the judge's report, with its opinion from two physicians, and the new hospital history are read in detail by the physician in charge, together with the results of the physical, mental and laboratory examinations. The patient appears and is questioned by several of the six to ten persons present.

SURGICAL TECHNIC

I report that the care and dexterity shown by the California surgeons compare favorably with high grade surgery in active service anywhere. It may be called expert work in a narrow field. Few cases call for complicated surgery; for example, one in twenty-two in a series of 445 abdominal operations by Dr. Covey of Sonoma. As to technic, the healing wounds in clean cases may be gathered from the same reporter, who stated that there was primary union in all but 6.5 per cent, and wound infection in 2.2 per cent.

No fatality has occurred since 1920 in a series covering more than 3,000 operations.

VASECTOMY

For closure of the vas deferens, the method used in California is ligation low down, with removal of a small section (fig. 1). Because they are dealing with the insane and feebleminded, general anesthesia is employed somewhat more frequently than local anesthesia. The preparation is as elaborate as for a laparotomy. The incisions are made on the anterior surface of the scrotum, though the vas lies at the back of the cord.[6] The opening is just above the epididymis, and about half an inch in length (varying from one-fourth to a full inch). While this incision is long enough to permit the drawing out and dissecting free of an inch or more of vas, the skin contracts enough for a single silkworm stitch to close the wound. It was noted that the large veins were not handled and were rarely seen, that the duct was delicately stripped, and that precautions were taken against postoperative oozing from the tissues separated from the vas, such as its accompanying and attached artery and the group of veins. At Stockton, Patton and Agnew, the tissues—presumably the cremaster fascia and common vaginal tunic and some cremaster fibers—were sutured with catgut to interpose a layer between the cut ends (Fig. 1 *F* and 12), but it was evidently nowhere thought necessary to suspend the testicle by suturing the low recut end to the wound as is done by Orth[7] and Schmidt,[8] except that at Stockton this end was included in its tunic suture.

Ligation was done at both ends or else at the upper end alone, and the two procedures were found with about equal frequency. Plain or chromic gut was used, with fine silk at Stockton only.

Steps of Operation.—The testicle is drawn downward; the whole spermatic cord is lifted in a line between the thumb and index finger of each hand (fig. 1), and the vas is rolled up just beneath the skin, standing out clearly between the finger tips. The vessels of the spermatic cord seem to be readily separated from the vas, except with a very thick dartos. A double tenaculum or claw-tipped forceps, such as the Allis, sets its points through the skin as this is held tense. Thus the duct is circled, and as the handles are dropped over sidewise the skin-covered loop is lifted, and the incision through the skin, from one-half to 1 inch, is handily made. At Patton, instead of sharp points, the seizure is made with rubber shielded tips on the forceps. Either thumb forceps or clamps seize the vas and pull out a loop of an inch or more. The tissues are stripped back about an inch with particular attention to the fine artery and the veins lying close to the cord. Sometimes, after clamps are placed, the vas is cut and the clearance of the loosely attached tissues behind it is then made. A clamp has the advantage over the grasp by tissue forceps in that the duct cannot slip out of sight. After the dissecting or pushing back of the loose tissue, a

* From the Committee on Maternal Health.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelop.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 14, 1928, together with exhibit. Part II reports the general social and legal situation in California, and other states, and embodies material presented in the exhibit.

4. Nürnberger, Ludwig: Die sterilisierenden Operationen an den Tuben und ihre Fehlschläge, Samml. klin. Vortr. 731/34 (Gynäk. 258/61) 1917. Excellent monograph and bibliography.

6. Pellacani, Paolo (Modena): Der Bau des menschlichen Samenstranges, Arch. f. mikr. Anat. **23**: 305-335, 1884. Martin, Edward: Genito-Urinary Surgery and Venereal Diseases, ed. 12, Philadelphia, J. B. Lippincott Company, 1920, p. 370.

7. Orth, Oskar: Die Operationen des Hodensacks, der Hoden und ihrer Hüllen, in Voelcker-Wossidlo: Urologische Operationslehre, Leipzig, Georg Thieme, 1924, p. 555.

8. Schmidt, P.: Steinachischen Operation, Wien. Rikola, 1922, English edition, London, William Heinemann, 1924.

half-inch or less of vas is cut away. Oozing is searched for and a fine catgut suture ligature on a round needle is used in case of doubt. If tissues are to be interposed between the ends, a buried fine catgut continuous suture whips over three or four bites, and the upper end is ligated with catgut in the groove crushed by the seizure of the upper clamp.

The wound is often collodion sealed, and then straps, bandage or suspensory hold the scrotum quiet. One or two days in bed is the average, with two or three days in the surgical ward.

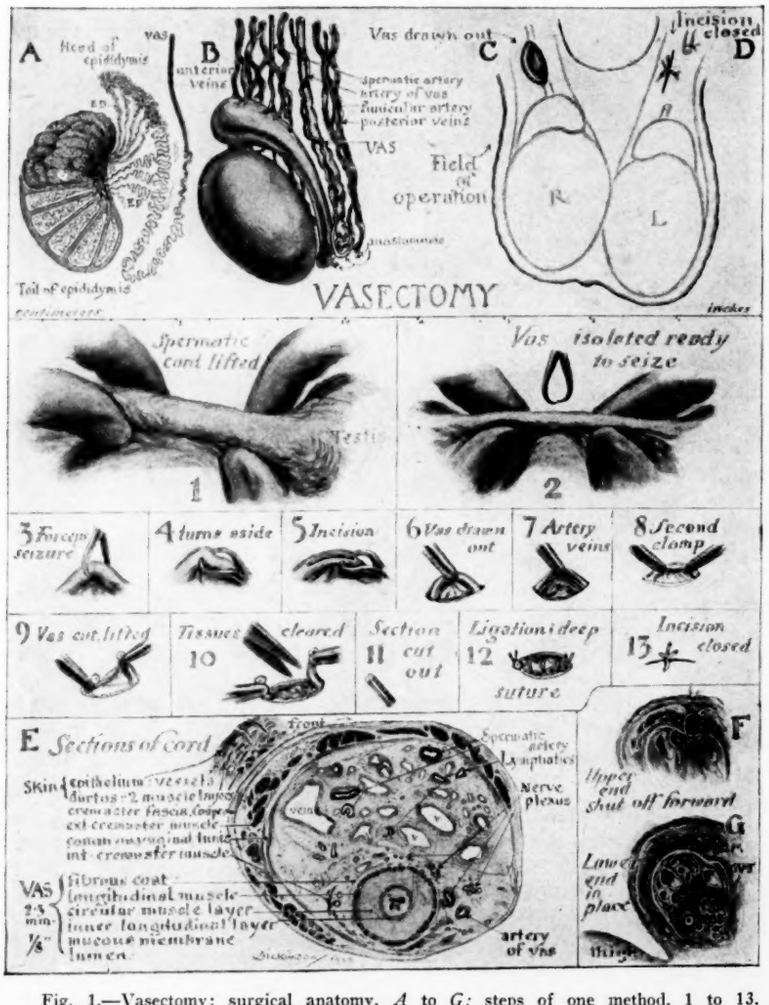

Fig. 1.—Vasectomy: surgical anatomy, *A* to *G*; steps of one method, 1 to 13. *A*, testicle and epididymis: dissection above and diagram of anteroposterior section below. *R* is outside the rete; *ED*, *ED*, the efferent ducts where Steinach more recently ties. *B*, left testicle and epididymis above it, seen from the left side, showing artery hugging the vas, and the anterior venous plexus through which the usual operative approach is made, and where varicocele chiefly occurs; compare with cross-section at *E* and *G*. *C*, anterior aspect of scrotum with loop of vas drawn out of incision; the anatomy is indicated by faint lines. *D*, incision closed by a single stitch; faint lines show the ends of the duct, a ligature on the upper end only. *E*, cross-section of left spermatic cord, lower third, lower surface (Pellacani): note how far to the rear the vas lies, and the nerve plexus, shown by minute dotted circles, in front and on both sides, *E* and *G* raise the question of lateroposterior incision—or the posterior attack endorsed by Martin. In *E* there is a mere suggestion of the skin with its circular superficial muscular fibers and the longitudinal muscle layer that does the puckering. Both layers are too closely adherent to dissect from the skin. *F*, diagram of forward displacement of a cut end of vas when the cremaster muscle and the tunics, cremasteric and common vaginal are sutured across the gap between the severed ends, as in 12. *G*, section of left cord from above, showing scrotal skin cover and relation to thigh. A cut vas left open at its lower end discharges into the loose tissues of the cord the very minute amount of fluid that carries the spermatozoa. The surgical anatomy (*A* to *G*) is drawn from Ecker, Charpy, Sappey, Colle in Poirier, Eberth, Pellacani and Piersol. 1-13, steps of section and ligation just above the testicle; the labels explain the procedure; a Madlener method as done on the uterine tubes would be still simpler; the line showing the scale applies to all drawings except *E*, *F* and *G*.

As to ill effects, Sharp[9] found none in his 236 institutional sterilizations in Indiana from 1899 to 1908; I found none in the rejuvenation series of 397,[10] and the California institutions, with an unrivaled experience and unequaled follow-up through keeping patients under observation, have not noted any physical or mental trouble.

Good results in 397 "rejuvenations" are claimed for three fourths of the males who are not too senile, but there have been scant results in younger men whose hormone production is at high capacity anyway. This literature stresses low ligation because, with high ligation, sacculation of the vas may fail to provide strong back pressure, Knud Sand[10] even removing the epididymis, and Steinach, more recently, as he told me in 1926, tying between epididymis and testis. Animal experiments showing interstitial cell growth are numerous, but Oslund[12] declares that this occurs only with intra-abdominal testes and not in animals with a pendulous scrotum. Moore's rabbits[13] showed that the increase in size was in the epididymis.

Oslund[12] states that the pressure in rats opens the ligated lower end. There will be only minute amounts to exude through any open lower end (fig. 1, 6) into the loose tissues of the scrotum (spermatozoa and a little colloidal material), as the bulk of semen at ejaculation is of course secreted by the prostate and the seminal vesicles. Free exit may prevent aching and that distention of the epididymis which is found sometimes when the vas is reimplanted.[14] Equilibrium between rate of production and absorption is quickly reached in animals[12] and thus distention is relieved and pressure-atrophy lessens.

Altogether, the reports from the younger men on whom vasectomies have been done would appear to bear witness that increased sex urge is not often to be feared from operation on the feebleminded.

SALPINGECTOMY

At Stockton, Margaret Smyth is expert and gentle. The opening is longitudinal, admits two fingers, and separates the rectus muscles. No gauze goes into the abdomen. The fundus is lifted by the fingers. One curved clamp catches the tube just at the cornu (fig. 2, 1), another about 1½ inches

9. Sharp, H. C.: The Sterilization of Degenerates, pamphlet (no date, probably 1908).

10. Schmidt (footnote 8). Benjamin, Harry: New Clinical Aspects of the Steinach Operation, M. J. & Record **122:** 1925, pp. 452, 515, 552. Haire, Norman: Rejuvenation (the work of Steinach, Voronoff and others), London, G. Allen & Unwin, 1924. Case histories; good bibliography. Lichtenstern, D.: Die Erfolge der Altersbekämpfung beim Manne nach Steinach, Klin. Wchnschr. **57,** number 42, October, 1920. Sand, Knud: Vasoligature Employed ad mod. Steinach, Acta Chir. Scandinav. **55:** 387-426, 1922. Steinach, E.: Verjüngung durch experimentelle Neubelebung der alternden Pubertätsdrüse, Arch. f. Entwicklungsmechanik **46:** 557-618, 1920. Welbarst, A. L.: A Report on the Steinach Operation in Senility and Premature Senility, New York M. J. **115:** 543 (May 3) 1922.

12. Oslund, Robert: A Study of Vasectomy on Rats and Guinea-Pigs, Am. J. Physiol. **67:** 422 (Jan.) 1924.

13. Moore, C. R.: Vasectomy in the Rabbit, Am. J. Anat. **34:** 317-336 (Nov.) 1924.

14. Martin (footnote 6, second reference). Hagner, F. R.: Sterility in the Male, with Remarks on Operative Experience, J. Urol. **13:** 377, 1925. Young's Urology, 1926, p. 540. Lespinasse, V. D.: Obstructive Sterility in the Male, J. A. M. A. **70:** 499 (Feb. 18) 1918.

15. Kohls, Erna (Klinik E. Meyer, Königsberg): Ueber d. Steriliaation zur Verhütung geistig minderwertiger Nachkommen, Arch. f. Psychiat. **77:** 285-303, 1926. Moderate bibliography. Stern, Maximilian; Folsom, Ralph; and Ritter, I. S.: Vasectomy and Its Influence upon One Hundred Cases of Dementia Praecox Studied at the Manhattan State Hospital, State Hosp. Quart. **10:** 404-412 (May) 1925.

away. A half-inch incision is made on the peritoneal covering of the tube, so that one tip of the blade of sharp-pointed forceps (fig. 2, II) may lift the tube out of the peritoneum, and a half-inch of it is stripped and cut away. A catgut stitch on a round needle closes the gap by three or four bites of a continuous suture, thus turning down and burying the lower end of the tube within the broad ligament (fig. 2, V). Around that part of the tube close to the cornu where the tube was crushed by the first clamp a silk ligature is tied, and the tube is tucked into the peritoneum. In several postoperative cases the wounds and scars were from 1½ to 2 inches long, whenever tube work only was needed. At Sonoma the feebleminded have the same advantage of a minimal incision, under Butler and Covey, with a small piece of tube removed and the ends buried after ligature.

At Los Angeles, Weaver in his private practice was found to be doing transverse incisions for the simpler abdominal procedures. At Patton, Simpson had used crushing and ligature and had had failures. Blossom ligated with tightly tied number 3 catgut, the proximal end of the cut tube being drawn deep into the broad ligament by the threaded ends of the ligature becoming sutures which were returned, respectively, front and back to close over the opened broad ligament. The distal end of the tube was brought up onto the fundus. Webster buried one end in the uterus and one in the ligament. Traver takes a wedge out of the angle of the uterus and carries his locked broad ligament stitch onto the uterus, inrolling the cornu finally with a Lembert suture.

At Norwalk, Tunnell and Rowe remove a small segment of tube, ligate both ends and bury them in the broad ligament. Etta Gray in private practice in Los Angeles uses double ligation and burial. In one state hospital the tubes, though healthy, were completely removed. Clark and Norris [16] have shown how difficult it is to take the tube off without injuring the circulation in the ovary (fig. 2, upper left). As a removal of the tube does not add any security and may result in ovarian atrophy, thereby introducing the risk of flushes, depression and nerve disturbance, such removal is to be condemned.

Removal of a wedge at the horn of the uterus (fig. 2, VI, VII), with obliteration of part or all of the intramural section of the tube, was in use by Johnson at Napa, by Traver at Patton, by Doan in the Pasadena General Hospital, by Weaver at Los Angeles, and by Prof. Frank Lynch at San Francisco. It had been given up at Norwalk by Tunnell and Rowe because of the increased suturing needed to insure against bleeding. It may be said that while the cornual wedge operation is standard gynecologic practice, Nürnberger's statistics [4] appear to show that the 6 or 7 per cent of pregnancies that follow give it no advantage over simpler sections with buried ends. Some of the insufflations done in New York after this procedure show even more frequent failures.

In one state hospital, when simple salpingectomies were done, yards of gauze were packed into the abdominal cavity to keep the bowels back. With a proper Trendelenburg posture there is rarely excuse for a treatment of the peritoneum that fosters adhesions. In two institutions the uterus was lifted by broad bladed forceps or even by toothed clamp seizure of the fundus. This is useless handling, also fostering adhesions and

Fig. 2.—Methods of salpingectomy: The arterial circulation is shown to demonstrate that total removal of the tube may cause a menopause by cutting off the ovarian blood supply. Even puckering of the broad ligament by mass ligature may do this. As Fredet depicts some main ovarian arteries that are very small, attention is drawn to the danger of ovarian atrophy from checking the chief blood supply if one catches the uterine artery beneath the cornu with ligature or suture when ligating a tube near the cornu or when removing a wedge. Note the marked vascularity of the angle of the uterus, which explains some hemorrhages during or following the wedge operation, especially with excision by the vaginal route. I to V, steps in exsection-ligature. V, diagram showing cut ends buried in the broad ligament under the peritoneum. The spindle canal in the interstitial portion is average anatomy (Guyon's thèse de Paris, 1859). The cervix is from Stieve's Halsteil der Gebärmutter, 1927. VI, VII, the wedge operation, shown in perspective and section. The Madlener écraseur and double ligature is the simplest and speediest of accredited methods. Walthard's larger bite of the tube may jeopardize the ovarian circulation.

therefore to be condemned, since in any case the tube is to be clamped on each side (figs. 2 and 3), and such clamps offer the best means of lifting the uterus. Surgery of the peritoneal cavity should always be gentle.

The incisions after simple salpingectomies were, when healed, as I saw them, from 1½ to 2½ inches in length in two hospitals and from 3½ to 5 in the others, 5 inches being the length chosen to admit the full hand. All were vertical. I speak for a short incision as being safer against hernia and as being likely to popularize

16. Clark, J. G., and Norris, C. C.: Conservative Surgery of the Pelvic Organs in Cases of Pelvic Peritonitis and of Uterine Myomata, Surg. Gynec. Obst. **11**: 400 (Oct.) 1910. Norris, C. C.: Gonorrhea in Women, p. 291.

the operation when compared with the unnecessary and conspicuous blemish of a permanent bar running from pubes to navel, and with the punctate scars of stay sutures that give the characteristic telegraph pole deformity. Indeed, salpingectomy (with or without fixation) is an ideal field for a transverse incision through skin and fascia (fig. 3) because of the simplicity of the work to be done and the security against weakness of the wall, or hernia, assured by the well known principle of the crossed or "gridiron" type of

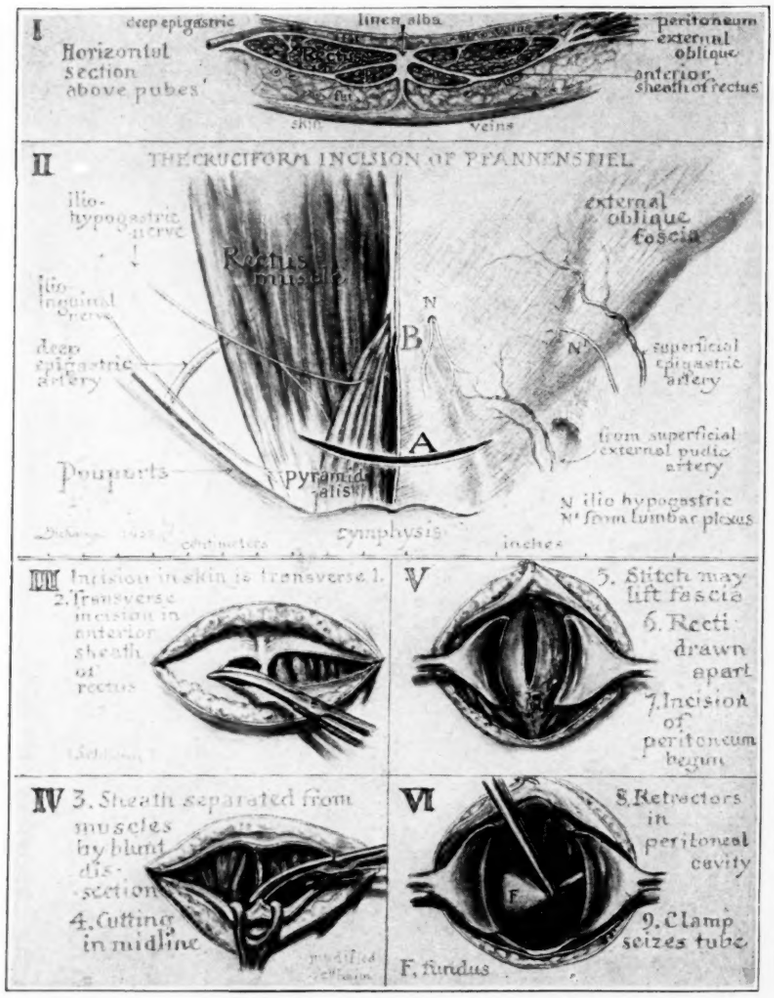

Fig. 3.—Salpingectomy with nearly invisible scar, by the gridiron incision of Pfannenstiel: Room for two fingers suffices. I and II show that the transverse incision (*A*) through skin and anterior sheath of rectus and the separation of the muscles (*B*) and the vertical incision in the peritoneum (V) avoid vessels and nerves and yield the maximum guarantee against hernia. This standard incision is particularly adapted to the minimal intra-abdominal manipulation called for in this operation.

incision. The scar disappears if located in the fold between the mons veneris and the abdomen, or if covered by the hair itself (fig. 4).

MULTIPLE OPERATIONS

The need for more surgery than mere sterilization was found at Sonoma in an average of one woman in twenty-two, the need being chiefly for appendectomy and ventral fixation of the retroverted uterus. The surgeons at Patton Hospital, in making a routine intra-abdominal search for gallstones, removed the gallbladder of one woman in twenty-two, and noted the presence of fibroids and ovarian growths in three of the last sixty patients.

TUBAL PATENCY TESTS OF STERILIZATIONS

In the California hospitals I demonstrated my simple form of insufflation, which has been in use seven years (fig. 5).[17] A rubber bulb, a T connection, and the glass intra-uterine tube with a shoulder at the external os and multiple opening at the tip constitute an outfit (at a cost of only $2.50) that can be coupled up to any blood pressure gage. The glass exhibits any clot or uncleanliness within the lumen. If there is any doubt as to whether a patient has had a salpingitis and is already sterile, the air test will determine the matter, and operation may not be needed. After every sterilization operation whatever, insufflation is imperative before parole or discharge. It is made soon after or half-way between the menstrual periods, when the uterine lining is least thick.

The speculum exposes the cervix. The tube is passed until its expanded bulb closes the external os snugly (fig. 5). This snugness is clearly observed through the glass. A tenaculum to steady the cervix is needed with torn cervices or a wide os. An assistant may auscultate over the lower part of the abdomen. The bulb is slowly compressed. In open tubes the air goes through normally at from 60 to 80 mm. of pressure; in considerably obstructed tubes the pressure ranges from 120 to 150 mm. The standard maximum test is 200 mm. It is not to be forgotten that leakage through the tube wall into the broad ligament, and emphysema, have occurred at 250 to 350 mm. A pressure of 200 mm. seems to me to put unnecessary strain on postoperative scar tissue, so I used, and asked the operators to use, from 140 to 150 mm.

As to the time after operation that should elapse before testing, judging from personal experience after my cautery stricture sterilizations, I advise waiting two months for adhesions to become firm, though six weeks is perhaps enough. The test should be repeated after the next menstrual period.

The need of testing is shown by the fact that it is a matter of surprise to leading gynecologic operators to be told that Nürnberger's studies show a pregnancy sequel of from 6 to 19 per cent.

CAUTERY STRICTURE OF THE UTERINE ENDS OF THE TUBES

Small canals lined with mucous membrane exhibit strictures so often that theoretically the bristle-sized opening of the tubes should be easily blocked, particularly as there is little of that strong driving pressure from behind which is present in the vas, the ureter or the urethra. The mucous lining of the uterus at the cornu is thin. An application to make it slough in its entire circumference (figs. 6 and 7) but in a narrow area, so that raw surfaces adhere, is an office procedure. It does not interrupt work.

Electric Cauterization.—Before sterilizing by the cautery wire (or by electrocoagulation), the shape and size of the cavity of the uterus must be defined. The uterine sound gives a very fair idea of the upper corner,

17. Dickinson, R. L.: Insufflation of Fallopian Tubes by Air and Hand Bulb, Am. J. Obst. & Gynec. **6**: 5 (Nov.) 1923.

whether acute angled, rounded or domed. In the latter cases the vestibule of the tube is difficult or impossible to find. For such conformations, visualization, as by roentgen shadow from injected iodized oils, is needed, or else the same skill with the new hysteroscopes of Rubin [18] and Gauss [19] and of Mikulicz-Radecki and Freund,[20] as has been attained with their parent, the cytoscope. With the aid of the eye it may be possible, in the future, also to dilate the minute uterine funnel as accurately as the mouth of the ureter can be, should it be desired to reopen a cautery stricture later.

In my simplest method [21] (1912 to date), after the length of the cavity is determined, the cautery sound is slid up against the external os so as to admit only this length (fig. 6). The possibility of pushing in farther and perforating is prevented by the sliding shoulder fixed where needed. When the cautery tip has been nestled into one upper angle of the uterus, the current is turned on for from ten to thirty seconds, according to the vascularity of the lining, a succulent uterus needing a longer application of the current. A test is made by starting to draw the sound away. It should adhere rather firmly and bring away a shriveled fragment of tissue all about it. Only in case the uterus relaxes, as it does during curetting, need one consider new sounding and renewed cauterization at this session.

The cases thus treated have been too few—about sixty-five in all—to permit the drawing of conclusions. In animals the uterus is not of comparable shape, so I abandoned my experiments, but Prudnikoff [22] in 1912 (fig. 7) and Mikulicz-Radecki and Freund [20] in 1927 did well with electrocoagulation in animals.

Numerous preliminary tests must be made in the following way to determine the average time and the outside limits of heating: When an abdomen is opened with the purpose of cutting out the wedge from the cornu for sterilization, after the uterus is held in the hand, the tip of a cautery sound which is within the uterus is heated and a time record taken, so that one can know the number of seconds at a given heat beyond which there is danger of perforation. The cornu is then cut out and the specimen studied. Thus, without prejudice to the patient, a series of observations will standardize the cautery procedure. I have had only four such experiences. Prudnikoff's first trials preceded hysterectomies for cancer; my first, of the same year, preceded hysterectomy for fibroid (fig. 7).

Chemical Cautery Stricture.—The suggestion was advanced by Froriep [23] in 1849 that fused silver nitrate on the end of a sound be guided into place by a hollow conductor. The slough would be cast off in seven days. No case histories have been found. Since Froriep's time, several new developments have borne on his plan, such as Guyon's [24] casts of the cavity, roentgen shadows after iodized oil injection, insufflation, the study of caustics, and the hysteroscope. Siredey's [25] 15,000 cases of cervicitis treated with quick acting potassium hydroxide and lime (Filhos' crayons) show how cervix stricture is feared, and how it occurs unless follow-up dilation is systematically carried out. This gives a clue to those who want stricture to occur, but this particular caustic may be unmanageable. Chemical stricture is likely to be the office method of the future because it is the simplest of all, though cautery stricture is easier.

REVERSIBLE OPERATIONS

There have been more than twenty-six sterilizing operations and proposals for operation on tubes and ovaries in which, by a second procedure, it is hoped to restore fertility. They emanate mostly from Germany. Naujoks [26] outlines them. The results are unsatisfactory, with an occasional suppuration, as from the inguinal canal.

Naujoks, reviewing temporary sterilization by means of x-rays or radium, calls it convenient, but shows that

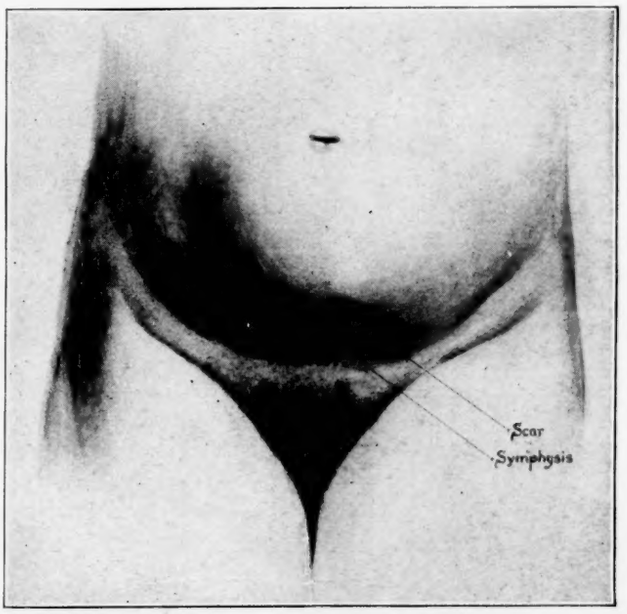

Fig. 4.—The scar, after a transverse incision, disappears in a normal skin fold.

it does not offer any certainty as to length of protection and that frequent sequelae of the same distress develop, as in the equally sudden menopause from surgical removal of the ovaries. In attempting temporary cessation of ovulation, the effect may turn out to be permanent. The effect on children born after the use of radium or x-rays falls into two classes. My collection of cases from the literature includes over fifty children born of mothers irradiated during pregnancy, with more than a third seriously defective, and half of these idiots or imbeciles. Of 196 children born of mothers after irradiation during a nonpregnant period (as for fibroids or hemorrhages), only one had grave defects, with five defective in a lesser degree from other possible causes.

CHOICE OF METHODS FOR STERILIZATION

For the Male.—In the man, selection is easy because the seminal duct is accessible, and vasectomy requires neither general anesthesia nor horizontal disability

18. Rubin, I. C.: Uterine Endoscopy with the Aid of Uterine Insufflation, Am. J. Obst. & Gynec. **10**: 313-327 (Sept.) 1925.
19. Gauss, C. J.: Hysteroscopie, Arch. f. Gynäk. **133**: 1, 1928; Ztschr. f. Gynäk. **17**: 1096-1128, 1928.
20. Mikulicz-Radecki and Freund: Tuben Hysteroscopie, Arch. f. Gynäk. **132**: 68, 1927.
21. Dickinson, R. L.: Simple Sterilization of Women by Cautery Stricture of the Intra-Uterine Tubal Openings, Surg. Gynec. Obst. **23**: 203 (Aug.) 1916.
22. Prudnikoff, Y. V.: Artificial Sterilization of Women by Means of Electrocoagulations. Thesis of the Imperial Academy of Medicine of St. Petersburg, 1912. Russian text.
23. Froriep, Robert: Zur Vorbeugung der Notwendigkeit des "Kaiserschnitts und der Perforation," Notizen aus dem Gebiete der Natur und Heilkunde **221**: 10, 1849.
24. Guyon, J. C. F.: Sur les cavités de l'uterus à l'état de vacuité, Thèse de Paris, number 46, 1858, p. 619.
25. Guillemin, M.: Résultats du traitement des metrites cervicales catarrhales chroniques par les cauterizations intracervicales au caustique Filhos, Bull. Soc. d'obst. et de gynéc. de Paris **13**: 321-340.
26. Naujoks, H.: Die praktische Bedeutung der zeitlich begrenzten Sterilisierung der Frau, Fortschr. d. Med. **44**: 133, 1926. Excellent summary for general practitioner; full bibliography.

for more than a few days, and there is no risk involved. For him there are still simpler methods of some promise:

Heat to the Testicle: Carl Moore [11] has shown that a rise in temperature of a few degrees arrests the manufacture of spermatozoa in several animals, ranging from the rat to the stallion. Even body heat, as with an undescended testicle, or with a testis replaced within the abdomen, stops spermatogenesis. A half hour at 116 F. (46 C.), that is, all the heat the hand can bear, suspends formation for weeks in the guinea-pig, although the unharmed supply in the reservoir, the epididymis, is deliverable for several days.

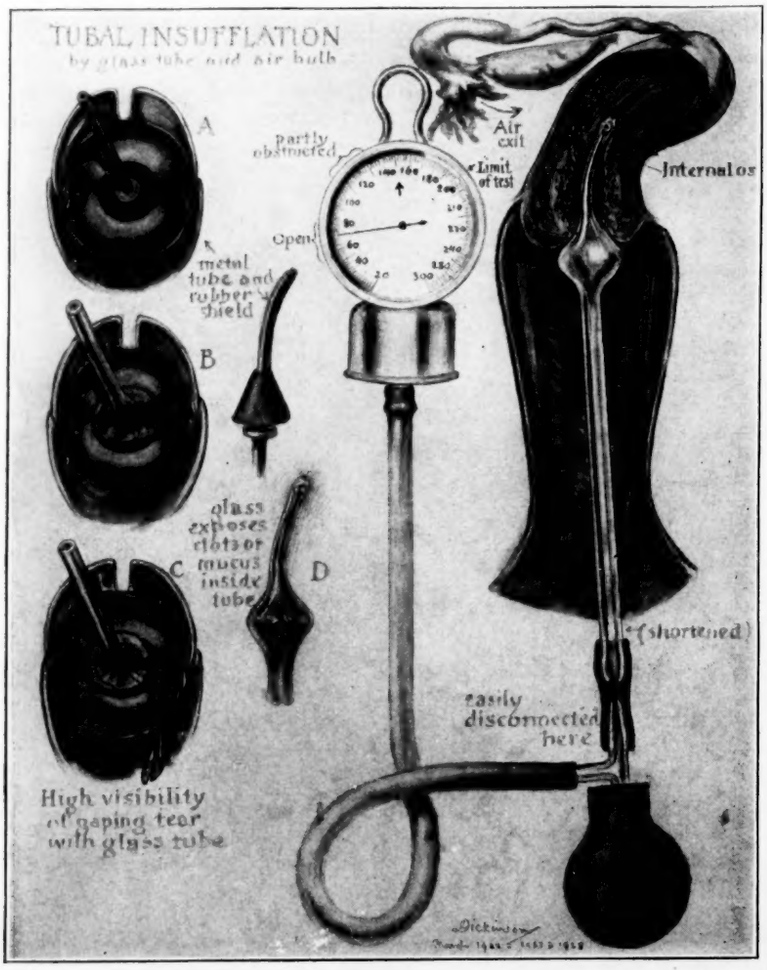

Fig. 5.—Insufflation tests to verify actual closure (or failure) after various sterilizing operations: This is done before patients are discharged or before unprotected intercourse is allowed. The simple method of the author is shown, using any blood pressure manometer. This glass tube has a large shoulder at the external os (*B*) and multiple openings at its tip. Like the glass catheter or hypodermic, it exhibits material within the lumen (*D*). The external os is not hidden, as with the metal and rubber tube (*A*). Forceps closure to check back-leak of air is visualized (*C*).

Irradiation: Unshielded roentgen operators are sterile but lose neither desire nor sensation, and they return to fertility when exposure ceases.

On these two kinds of sterilization—temporary and permanent—research is needed; as it is also on implantation of the cut tube into the epididymis to restore fertility, because the claim of 50 per cent success [29] has hardly been substantiated. It looks as if 25 per cent of success were nearer actuality, judging not by mere semen in a specimen, but by children born at or near term.

29. Hagner (footnote 14).

For the Female.—Salpingectomy is, or can be made, anatomically effective; but opening of the abdominal cavity is not without a small risk to life, and there are a few instances of painful adhesions, while the requirement of anesthesia, hospitalization, confinement in bed for two weeks, and abstention from heavy lifting for a couple of months is a serious handicap, except in institutional patients. Moreover, the very persons who most need sterilization, the married women with the permanent disability of incurable organic disease and mental and nervous imbalance, are bad risks for ether and for major operations. Opening the abdomen through the vagina carries a much lower risk than the attack from above and entails a shorter absence from work; but it calls for greater skill, the parts are somewhat less accessible, and oozing is sometimes hard to control. America has few experts in vaginal celiotomy as compared with the European continent.

Cautery: If the new hysteroscopes will enable the operator to see to place the chemical or electric cautery so exactly as readily to bring about a tight stricture at each narrow upper angle of the uterine cavity, and then later give him vision to puncture or stretch the scar, the procedure would be no more delicate than everyday cystoscopic treatment at the ureter opening. Even without vision, the adoption of this production of stricture is merely a matter of more extended clinical study, if my own experience is a trustworthy guide.

MORAL AND LEGAL PROBLEMS

There has been much speculation and solicitude concerning the effect on the morals of the individual and the community following discharge or parole of sterilized men and women. The California follow-up, in the main surprisingly reassuring on this matter, will be taken up in part II. The right of the state to sterilize citizens for its own good has been settled by the United States Supreme Court. This, together with an account of the actual operation of laws and the numbers sterilized in various states, will also be presented in part II, together with a consideration of the numbers involved, as indicated by the size of the feebleminded and insane population and the cost of segregating them in institutions.[30]

SUMMARY

A personal survey in California institutions shows proper safeguards when operations on men and women are advised in order to release them for return to work or to home supervision, and excellent surgical technic, with good results shown by the follow-up. The consideration and pictured details of various operative procedures with their surgical anatomy, as presented, argues for the simplest methods as the best. I myself favor low transverse incision. A review of the literature, including the reversible operations and nearly 400

30. Motion passed at the Minneapolis meeting, June 14, 1928: "Resolved, That the Section on Obstetrics, Gynecology and Abdominal Surgery recommend to the American Medical Association that it organize or take part in an impartial and thorough investigtaion of sterilization from the point of view of medicine, surgery and preventive medicine."

"rejuvenations," brings up the discussion of nonhospital methods, such as heat to the testis, irradiation of the male or female gonad, and intra-uterine cautery stricture, chemical or electrical, visualized by the hysteroscope. Stress is laid on testing results by searching for spermatozoa in the semen and by insufflating the uterine tubes.

2 East One Hundred and Third Street.

ABSTRACT OF DISCUSSION

DR. O. L. NORSWORTHY, Houston, Texas: The subject of feeblemindedness and crime, their causes, care and prevention, has become one of world-wide interest. The International Rotary organization, which is to convene in Minneapolis next week, will have this question brought before it. Especially will the needs for prevention of delinquency through inheritance be discussed before the International Rotary organization. Even the commercial world is becoming educated to sterilization of the unfit, and after a few years' education through such spendid organizations as the Rotary clubs, and other clubs, our law makers, as well as our general population, will become convinced that selected breeding in man is just as important as in animals. As Dr. Dickinson says, sterilization, not castration, should be done. The public must be made to realize the difference. Sterilization does not cause castration, nor does it unsex either sex. The operation of sterilization is not dangerous to health or life. It is a minor operation and should be classed as such.

B
Platinum tip burns at angle of cavity. Scar, after tissues heal, closes tube.
D
fresh cautery control burn on cervix
A
E
collar on slide prevents perforation by tip above
C
F
Cautery control burn has become firm scar tissue
STERILIZATION BY STRICTURE PRODUCED AT ENTRY of TUBE INTO UTERUS
G

Fig. 6.—Office method of sterilization through electric cautery burn at cornu (*B*). The slough is followed by stricture. When the control scar on the cervix (*C*) has become rigid, the interior scar (*D*) should stand insufflation.

To read an account of some of the noted cases of feeblemindedness in which an alarming number (as high as 1,200) of the offspring were feebleminded, criminals, drunkards or moral perverts should convince any doubting mind of the need of some rigid

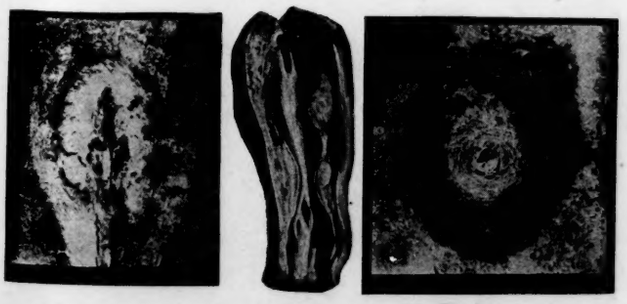

Fig. 7.—Demonstrations of cautery burns in uteri requiring removal. The center one immediately preceded hysterectomy for fibroids, and was done with a platinum nasal tip by Dickinson. The two sections by Prudenkoff, at the sides, are from cancer operations two days after electrocoagulation. All three were in the year 1912.

restrictions to prevent the population of our jails, feebleminded colonies, and insane institutions equaling that of our schools for higher education.

DR. JAMES F. COOPER, New York: I happen to be connected with an organization, a lay group, that is undertaking the study of contraceptive measures. Dr. Dickinson referred to lay organizations studying the question. There is an organization called the Eugenic Society, which also is a lay organization. The initial studies in the subject of temporary contraceptive measures and permanent sterilization have been undertaken by organizations made up of lay groups and have not been officially undertaken by the medical groups. I want to express my great appreciation of Dr. Dickinson's efforts in attempting to interest this body in officially adopting investigation along these particular lines, because they are, after all, fundamentally medical problems and should be entirely under the control and direction of official medical bodies. While we of the lay groups have been entirely medical in our particular investigations and the investigations have been under the personal control of physicians, yet the organization, the enthusiasm and the direction have had to come from lay groups. We hope that the day will soon come when we as lay organizations will be able to lay down our burdens which will be taken up by the larger and more proficient groups of organized medicine along these lines.

ESOPHAGEAL DIVERTICULA*

CHARLES T. STURGEON, M.D.
LOS ANGELES

Esophageal diverticula, while probably not occurring any more frequently than formerly, are being diagnosed more frequently as a result of a better understanding of this condition by the profession.

In 1840, Rokitansky [1] classified esophageal diverticula into two types, the traction and the pulsion. This classification is still used today. In 1887, Zenker and Ziemssen [2] described the condition known as Zenker's pharyngo-esophageal diverticulum. Oekenomides [2] in 1882 added the traction-pulsion variety.

Traction diverticula usually occur in the thoracic portion of the esophagus. They are caused by cicatricial contraction of a chronic inflammatory process drawing the wall of the esophagus outward and include the whole wall of the esophagus. The apex of the pouch is usually higher than its point of entrance into the esophagus and therefore rarely attains any appreciable size or produces any symptoms. Occasionally food particles may lodge in the pouch. The sac then enlarges because of pressure from within and in this manner a traction-pulsion diverticulum is formed. Judd [3] estimates that this occurs in about 7 per cent of traction diverticula. He reports two personal cases. Case 1 of this series also belongs to the traction-pulsion type.

Pulsion diverticulum usually occurs in elderly persons, mostly men, and always in the cervical region. The point of origin is fairly constant directly back of the cricoid cartilage on the posterior wall of the esophagus, at its juncture with the pharynx. At this point where the oblique muscles of the pharynx and the transverse circular muscles of the esophagus meet, there is a small triangular area not covered by muscle. This area has been described by many writers as the Lannier Hackerman area.

Bevan [4] believes that a predisposition to the development of a diverticulum may occur as the result of more than normal weakness at this point, possibly because

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 15, 1928.

1. Rokitansky, C., quoted by C. H. Mayo (footnote 13).
2. Quoted by Judd (footnote 3).
3. Judd, E. S.: Esophageal Diverticula, Arch. Surg. **1**: 38 (July) 1920.
4. Bevan, A. D.: Diverticula of the Esophagus, J. A. M. A. **76**: 285 (Jan. 29) 1921.

of congenital absence of muscle fibers over a large area. Judd, in reviewing his cases, could not find any clue to the etiology other than weakness in the wall of the upper end of the esophagus. There had been no history of trauma or any evidence of anything unusual in mastication or deglutition. Jackson and Shallow [5] believe that the chief factor in the etiology of esophageal diverticulum is the pinch-cock action of the cricopharyngeus muscle. Normally the pinch-cock is always closed except when it momentarily opens on the approach of food or water. When it fails to open, a tremendous pressure is exerted on the pharyngeal walls which causes pouching at the weak point. Jackson recommends gently stretching the cricopharyngeal constriction, even when not organically strictured, in order to lessen the tendency to recurrence of the diverticulum and to prevent postoperative leakage.

Fig. 1.—Diverticulum of the thoracic portion of the esophagus.

Morley [6] feels that there is no evidence of a congenital origin and states that we can only assume that for some unknown reason the circular fibers at the upper end of the esophagus fail to relax in the process of deglutition. Durr [7] reports that half of his cases of pulsion diverticulum were associated with goiter. Von Hofmeister [7] also reports in a series of nine cases that five showed retrosternal goiters. Bull [8] reports that diverticulum of the esophagus has been observed in association with idiopathic dilatations of the esophagus.

Whatever may be the etiologic factor, once the esophageal muscles have been penetrated the sac gradually enlarges. At first the pouch is in the midline growing down behind the esophagus, gradually increasing usually into the left side of the neck. In this series of seven cases, the pouch presented in the right side of the neck three times. As the sac gets larger it frequently grows into the mediastinum, becoming intrathoracic. The walls of the sacs are very thin and are composed of a layer of mucous membrane and fibrous tissue. Judd has called attention to the fact that, while occasionally there may be a band of muscle fibers extending across the sac, muscle tissue is not a part of the sac wall.

The inception is probably rarely recognized, as the sac has to attain some size before it will give trouble in swallowing. Dysphagia and regurgitation of food are usually the first symptoms. Later gurgling noises in the throat and cough are complained of. As the sac increases in size dysphagia is more marked, resulting in loss of weight.

The diagnosis is not difficult. Complicated tests are not necessary. Given a patient with a history of dysphagia and regurgitation of food, the first thing to order is a barium meal examination. The x-rays will always reveal the sac if the condition is due to a pulsion diverticulum (figs. 1, 2 and 3). The x-rays will also determine in which side of the neck the sac presents. In the patients with a large sac one can usually see one side of the neck enlarging as the patient drinks water, and by making pressure over this area one can cause the fluid to regurgitate back into the mouth. The diagnosis is never complete without an esophagoscopic examination, for this will demonstrate or rule out other pathologic conditions of the esophagus, such as organic strictures or carcinoma below the diverticulum.

TREATMENT OF DIVERTICULUM

The treatment of pulsion diverticulum is surgical, even in patients with small sacs that cause but little trouble, for at this time the patient's general condition is excellent. As time goes on the tendency is for the sac to increase in size, causing marked deformity of the esophagus. The result is an increase of dysphagia and regurgitation of food resulting in a marked loss of weight and a patient who is a poor surgical risk.

Patients formerly came for treatment in a starved condition and many required a preliminary gastrostomy for forced feeding. Fortunately at present this is rarely necessary and in many cases the condition is recognized so early and the condition of the patient is so good that preliminary measures are not necessary.

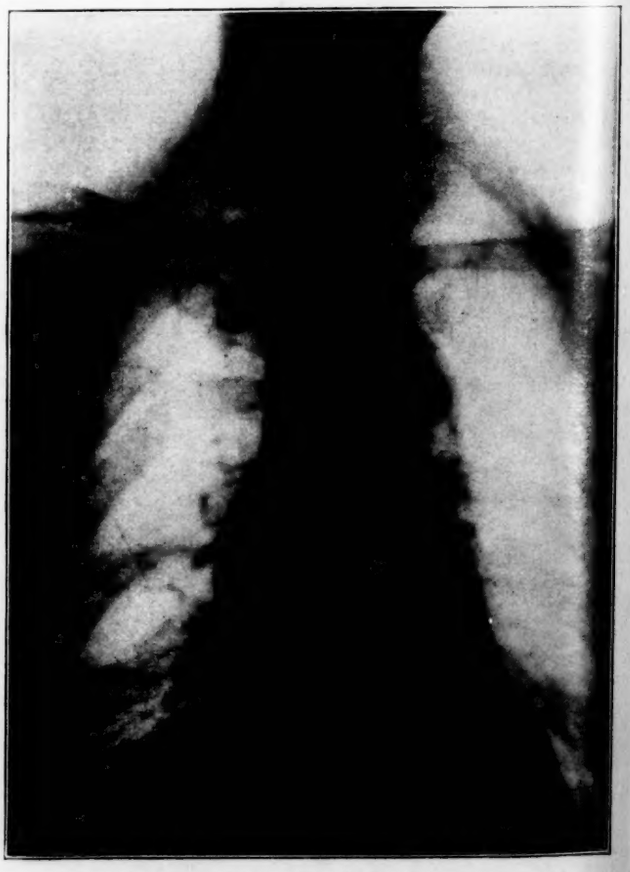

Fig. 2.—Small pulsion diverticulum.

5. Jackson, Chevalier; and Shallow, T. A.: Ann. Surg. **83**: 1 (Jan.) 1926.
6. Morley, J. C.: Brit. M. J. **1**: 981 (June 12) 1926.
7. Quoted by Morley (footnote 6).
8. Bull, P. N.: Ann. Surg. **81**: 59 (Jan.) 1925.

It is my custom to hospitalize patients who are in fair physical condition for a few days and force fluids both subcutaneously and by rectum. On the day preceding the operation, the patient is given intravenously 1,000 cc. of 10 per cent solution of dextrose. For the emaciated patient some method of forced feeding should be used. A duodenal catheter can frequently be passed through the nose down the esophagus into the stomach and feedings given through the catheter, which may be left in place from seven to fifteen days. When the sac is very large it is almost impossible to pass a catheter into the esophagus. In this type of case Vinson [9] suggests having the patient swallow a thread and, using this as a guide, to pass the catheter as described by H. S. Plummer.[10] The catheter can be removed daily but not the thread.

Fig. 3.—Large pulsion diverticulum.

All patients should be instructed to keep the sac empty for several days before the operation. This can easily be done by drinking several glasses of water soon after eating, thereby washing out the sac.

Many different methods have been used to treat this condition. Bell in 1830 recommended an external fistula. König recommended elevating the sac and fixing its fundus to the hyoid bone. Wildenberg in seven cases changed the direction of the sacs, later removing three of them. Liebel fixed the sac to the skin incision, leaving it unopened. Von Beck recommended ligating the neck of the sac and leaving it to slough out of the packed wound. He reported two deaths from pneumonia in seven cases. Goldman reported by von Beck's method 65 per cent of fistulas with infection and slow healing. Niehaus probably made the first extirpation. Girard [11] in 1896 invaginated the sac and sutured the esophageal walls. Bevan,[4] elaborating this procedure, invaginated by suture, and recommends in large sacs the removal of a portion before invaginating. Murphy [12] recommended delivering the sac unopened through the incision, twisting it, later amputating it and closing the fistula. By this method many sacs became gangrenous as a result of the interference with the circulation. C. H. Mayo [13] suggested sewing the sac untwisted to the sternomastoid, leaving it in this position for ten days, later amputating it and closing the opening in the esophagus. This is the method used today.

9. Vinson, P. P.: Pharyngo-Esophageal Diverticula, J. A. M. A. **85**: 178 (July 18) 1925.
10. Plummer, H. S.: Surg. Gynec. Obst. **10**: 519, 1910.
11. Girard, C.: A. franç. de chir. **10**: 392, 1896.
12. Murphy, J. B.: Surg. Clin. Chicago **5**: 391, 1916.
13. Mayo, C. H.: Ann. Surg. **77**: 267 (March) 1923.

At present the operation is well standardized. The only controversy existing is whether the operation should be completed in one stage, that is, by freeing and excising the sac in one operation, or in two stages, by freeing the sac and suturing it unopened in the wound with excision about ten days later.

Jackson and Shallow [5] and Gaub [14] believe that the one stage operation, with the aid of the esophagoscope and the use of the Rehfuss tube postoperatively, is safer and gives much better results.

In cases in which the sacs are small, surgeons have a choice. In this type of case the one stage operation is excellent but in large sacs extending into the mediastinum and in patients in poor physical condition one has no choice; the two stage operation is the only one to use.

The early operations for removal of diverticula were attended by high mortality. This mortality was due to infection in the neck, which usually extended down into the mediastinum. In the two stage operation there is usually an interval of about ten days between the first and the second operation. During this time the mediastinal space becomes closed by granulation tissue. This minimizes the danger of mediastinitis. Another advantage is that if the position of the sac is changed it is no longer in the direct line of the descent of food and patients are able to swallow without difficulty. Patients can usually be out of bed.

The operation should be performed, if possible, under local anesthesia, usually 1 per cent procaine hydrochloride. The sacs in many cases, especially if small, are very difficult to locate. A conscious patient can be told to swallow, and this causes a bulging of the sac which greatly aids in its location.

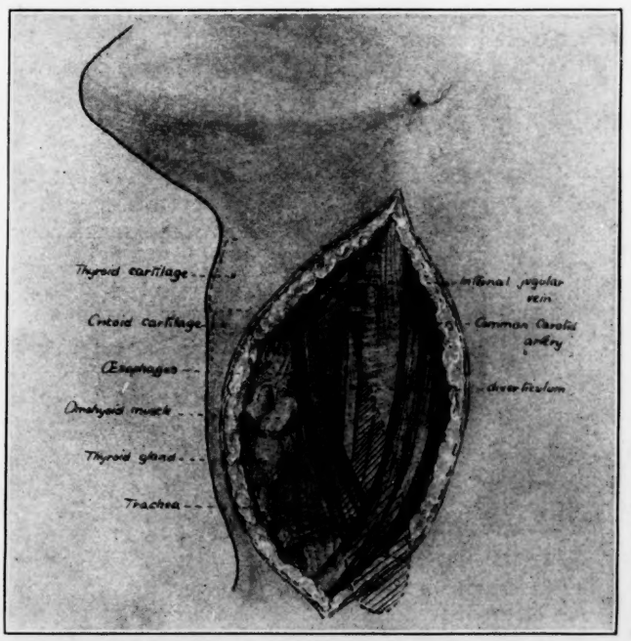

Fig. 4.—The usual position of a large diverticulum behind the esophagus and extending into the side of the neck.

Whether one performs the one or two stage operation the technic of freeing the sac is the same. The skin incision, including the platysma, is made along the anterior border of the sternomastoid from just above the level of the cricoid cartilage down to the clavicle. The sternomastoid is retracted outward and the deep cervical fascia is divided parallel with the skin incision. The

14. Gaub, O. C.: Surg. Gynec. Obst. **21**: 52, 1915.

large vessels of the neck are retracted outward and the sternohyoid muscle is retracted inward. The middle thyroid vein, if present, is ligated before any attempt is made to expose the thyroid gland.

The omohyoid muscle should be divided if it interferes with good exposure. The thyroid gland is rotated

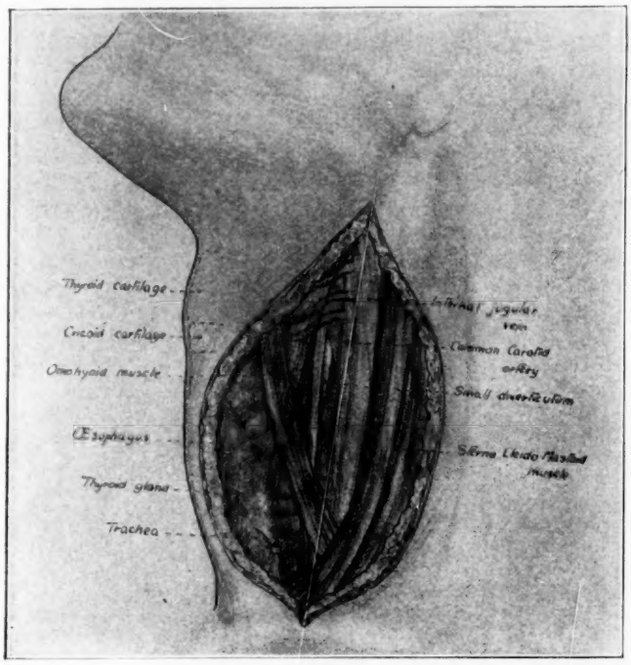

Fig. 5.—The position of a small diverticulum almost completely behind the esophagus.

inward; this exposes the upper part of the trachea at its junction with the thyroid cartilage. Behind this may be seen the esophagus as a flat fold pressed against the vertebra (fig. 5). If the sac is small it will be behind the esophagus slightly to the left of the midline just below the level of the cricoid cartilage. If large, it is easily recognized (fig. 4). If local anesthesia is used the patient is asked to swallow, and the sac can be seen bulging out of the lower portion of the neck. Jackson has suggested an ingenious method of localizing the sac. During the operation he inserts a small endoscope into the sac, the illumination from within guiding the surgeon.

The sac, when located, can usually be freed from the surrounding structures with blunt dissection. Some few firm adhesions may have to be cut. Great care should be taken not to perforate the sac. As soon as the sac is delivered from its position in the chest, the cavity should be packed with a warm sponge to protect the mediastinum from accidental leakage. One point of importance in the dissection is the danger of injuring the sac at its juncture with the esophagus. If the sac has a narrow neck, it is easy to differentiate between the esophagus and the diverticulum. However, if it has a wide opening into the esophagus, as is common, there is a great danger of opening the sac or injuring the esophagus, causing leakage and possible infection.

The sac, having been entirely freed, can now be dealt with by two methods, depending on whether a one or two stage operation is to be performed. The one stage operation as performed by Gaub, Jackson and Shallow is as follows: The neck of the sac, as in inguinal hernia, is transfixed with a fine needle and number 1 iodized catgut. The sac is then cut away. Three interrupted sutures are now placed, each suture picking up the muscular coat of the esophagus. These sutures cause inversion of the stump. The esophagoscope being in situ during the operation, there is no danger in narrowing the lumen of the esophagus too much. The incision in the neck is closed in layers. A small piece of corticello silk is placed beneath the deep fascia. The Rehfuss tube is passed through the nose into the stomach and retained for from ten to eighteen days. This affords rest to the esophagus.

The two stage operation as performed by C. H. Mayo, Judd and Lahey [15] is as follows: After the sac has been freed from the surrounding structures and down to the esophagus, it is sewed to the sternomastoid or the platysma with a few catgut sutures (fig. 6). In doing this great care should be taken not to pull the sac too far out, so that the esophagus will not be pulled out of normal position. Also some sacs are so thin that there is danger of penetrating them in sewing them to the muscle and causing a leak, with secondary infection of the tissues of the neck. The wound in the neck is sewed around the sac and the entire sac allowed to prolapse from the wound (fig. 7).

The sac is left in this position from eight to twelve days, depending on its size, at which time the second operation is performed. The tissues around the neck of the sac are injected with 1 per cent procaine solution. The neck of the sac is again freed, either a purse string or a transfixing suture is used to tie it off, and the sac is excised. A few interrupted sutures are used to reinforce the esophagus. A small fistula usually forms, although it heals completely in a short time (fig. 8).

REPORT OF CASES

CASE 1.—Mrs. H. W., aged 75, seen in consultation with Dr. Harold Smith, complained chiefly of loss of appetite,

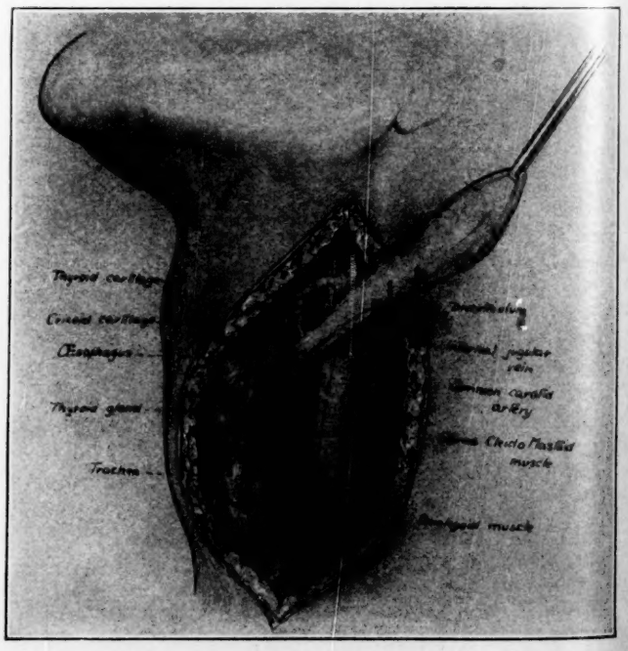

Fig. 6.—The diverticulum completely delivered from the neck, showing the attachment to the esophagus.

increasing weakness and constipation. She had always enjoyed good health until the last eight years. She did not give any symptoms of regurgitation or of vomiting. On account of weakness and increasing constipation, a malignant condition of the large bowel was suspected.

15. Lahey, F. H.: Surg. Gynec. Obst. 43: 359 (Sept.) 1926.

On physical examination the patient appeared poorly nourished. The lungs and heart were normal. The urine was normal. The blood count showed hemoglobin, 74 per cent; red cells, 3,874,300; leukocytes, 8,700; polymorphonuclears, 72 per cent; lymphocytes, 28 per cent. A dye series of the gallbladder showed a poorly outlined gallbladder and stones. Gastro-intestinal examination was negative except for a diver-

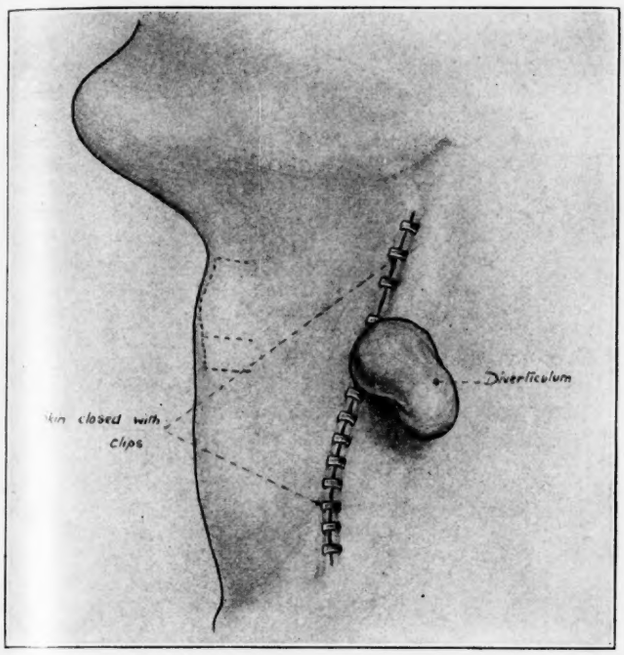

Fig. 7.—End of first stage of the operation: Prolapse of diverticulum from the wound.

ticulum of the thoracic portion of the esophagus. Its lower border was about 10 cm. below the upper level of the arch of the aorta, or 16 cm. below the upper border of the sternum. The opening into the esophagus was about 3 cm. in width from above down, the pouch itself extending 1 cm. above and below and 3 cm. deep. Posterior-anterior stereoroentgenograms of the chest made in the erect position showed a small chest, and diaphragms which did not move freely. There was a calcification within the arch of the aorta. There was some thickening of the lung roots with marked prominence of the descending branches, and some thickening in each hilum, which was particularly noticeable in the oblique views from the fluoroscope. An esophagoscopic examination was not made.

The diagnosis was: (1) traction pulsion diverticulum of the esophagus; (2) cholecystitis and cholelithiasis.

No treatment for the diverticulum was advised, for it did not produce any symptoms. The patient's general condition did not warrant a cholecystectomy at the time of examination.

CASE 2.—F. S., a man, aged 58, whose chief symptoms were difficulty in swallowing, regurgitation of food, and gurgling noises in the throat, first noticed these symptoms seven years before examination. At first they were intermittent; he would have periods of four or five months without any trouble. The past two years all the symptoms were continuous and much worse. The patient lost 48 pounds (22 Kg.), mostly during the past two years.

The patient was tall and poorly nourished. The chest, heart and abdomen did not present any pathologic conditions. Roentgen examination showed a large diverticulum of the esophagus, presenting in the left side of the neck. Esophagoscopic examination was not attempted. The urine was normal. The blood count showed hemoglobin, 73 per cent; red cells, 3,185,298; leukocytes, 11,000; polymorphonuclears, 73 per cent; lymphocytes, 27 per cent.

We felt that it was necessary to attempt forced feeding of the patient before any operation was attempted. I was unable to pass a duodenal catheter beyond the sac but was finally successful in having the patient swallow a silk thread; then, using the thread as a guide, I was able to pass a catheter into the stomach. The patient was fed in this manner for ten days. The catheter was removed after each feeding but not the thread.

Under local anesthesia, 1 per cent procaine, the first stage of the operation was performed; the sac was easily freed and was sewed to the sternocleidomastoid muscle. Following this procedure the patient was able to take a fair amount of liquid food, and ten days later the second stage was done, also under 1 per cent procaine. A sinus persisted for two weeks. At present, five years after the operation, the patient is perfectly well. He has gained 50 pounds (23 Kg.).

CASE 3.—D. O., a man, aged 68, whose chief complaints were difficulty in swallowing and regurgitation of food, first noticed these symptoms six years before examination, but they were very mild; only during the last six months had they become very troublesome. He had lost only 5 pounds (2.3 Kg.).

Physical examination was negative. The urine was normal. The blood count showed: hemoglobin, 84 per cent; red cells, 4,820,728; leukocytes, 7,500; polymorphonuclears, 68 per cent, and lymphocytes, 32 per cent. Roentgen examination showed a small diverticulum of the esophagus, the sac being practically in the midline. An esophagoscopic examination made by Dr. Simon Jesberg was negative for other pathologic conditions. No preliminary treatment was necessary, his general condition being excellent.

The first stage of the operation was performed under nitrous oxide anesthesia. The sac was sewed to the sternocleidomastoid muscle. The patient was out of bed on the second day and had no difficulty in swallowing liquid. Six days later, under 1 per cent procaine, the sac was amputated. A small sinus persisted for six days. It is now four years since the operation and the patient is completely cured.

CASE 4.—H. B., a man, aged 62, complained of difficulty in swallowing, regurgitation, vomiting, gurgling noises in the throat and cough. This trouble started fifteen years before and at the examination the most troublesome symptom was vomiting. The patient had lost 20 pounds (9 Kg.). Five years previously he had been operated on for the same condi-

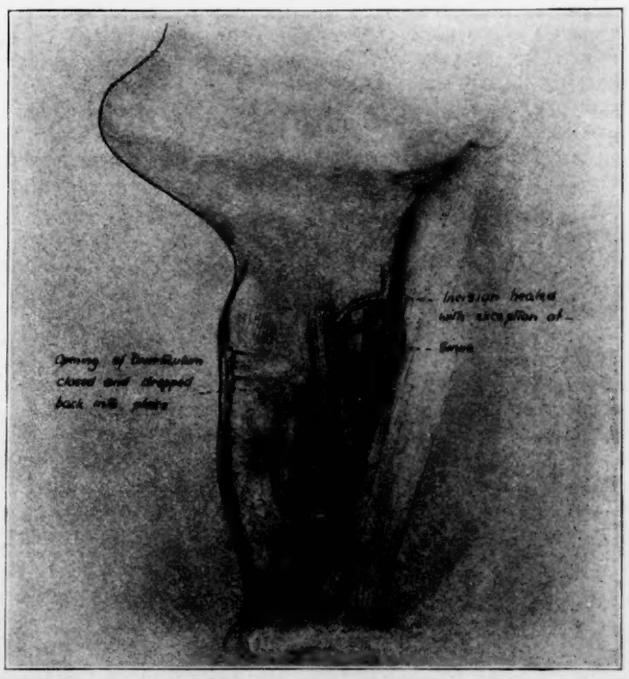

Fig. 8.—Freeing and excision of sac.

tion without relief. He had had a discharging sinus for seven months and as soon as the sinus closed all the symptoms returned. Physical examination was otherwise negative. The right side of the neck bulged when the patient drank water; he was able to drink 12 ounces of water before regurgitating.

Roentgen examination showed a large diverticulum of the esophagus presenting in the right side of the neck. An esoph-

agoscopic examination was made by Dr. Simon Jesberg and no other pathologic condition was found.

By way of preliminary treatment the patient was hospitalized for three days; fluids were forced subcutaneously and by rectum, and 1,000 cc. of a 10 per cent dextrose solution was given intravenously the day before the operation.

Under 1 per cent solution of procaine the first stage of the operation was performed. No difficulty was experienced in locating the sac, but it was very difficult to free the sac because of dense adhesions from the previous operation. The sac was sewed to the sternocleidomastoid muscle and ten days later it was removed. The patient had considerable difficulty in swallowing after the first stage of the operation, so a duodenal catheter was passed through the nose and down the esophagus into the stomach. This was left in situ for twelve days. He had no difficulty in swallowing after the second stage of the operation. A small sinus persisted for eight days. It is now three years since the operation and the patient is perfectly well.

CASE 5.—T. T., a man, aged 74, referred by Dr. John Barrow, complained chiefly of difficulty in swallowing, regurgitation of food, and cough. His trouble had started one year before and had been continuous. The patient had had a severe cough for the past five years.

Physical examination did not reveal any other pathologic condition except a marked bronchitis. The patient had a prostatectomy two years before from which he had fully recovered.

Roentgen examination showed a small diverticulum of the esophagus presenting in the right side of the neck. Esophagoscopic examination by Dr. Simon Jesberg did not show any other pathologic condition.

The patient's general condition was good, so no preliminary treatment was necessary. Under 1 per cent procaine the sac was freed without any difficulty and was sewed to the sternocleidomastoid muscle. The patient had no difficulty in swallowing following this operation, but on the fifth day food discharged from the neck wound. The second stage was done at this time and the sac was found to be gangrenous. It was removed and an attempt was made to reinforce the esophageal opening with a few interrupted sutures. A duodenal tube was inserted through the nose into the stomach and left in for six days, after which the patient was able to swallow liquids. A discharging sinus persisted for four weeks with considerable leakage of food. At the end of four weeks the sinus was completely healed and he had no difficulty in swallowing. It is now two years since the operation and the patient is still perfectly well.

CASE 6.—J. W., a man, aged 72, referred by Dr. J. Mark Lacey, complained chiefly of difficulty in swallowing, regurgitation of food, and vomiting. The patient first experienced difficulty in swallowing ten years before; he felt as if food stopped in the middle of his chest and was relieved only after a severe coughing spell. For the last two years he had had regurgitation of food and vomiting, and at the time of examination had gurgling noises in the throat after eating. The blood pressure was 225 systolic and 140 diastolic. A prostatectomy had been done ten years before; otherwise the history was negative.

The physical examination was negative. Roentgen examination showed a medium sized diverticulum of the esophagus presenting in the left side of the neck. An esophagoscopic examination made by Dr. Simon Jesberg did not reveal any other pathologic condition.

No preliminary treatment was necessary.

Operation was performed under 1 per cent procaine. The sac was freed easily but in attempting to free the neck of the sac at the esophagus, the sac was accidently opened and a small amount of frothy mucus escaped into the neck wound. The wound was immediately irrigated with Ringer's solution and swabbed with 2 per cent mercurochrome solution. The sac was then amputated, a transfixion suture of number 0 chromic catgut being used. Three interrupted sutures of number 0 chromic catgut were used to reinforce the esophagus. A duodenal tube was immediately inserted through the nose into stomach. The tube caused a good deal of irritation and could be tolerated only four days; it was then removed and the patient was able to swallow liquids without much difficulty. He developed a very severe infection of the neck wound which healed in three weeks, but in spite of this infection he was able to take fluids and at no time did he have any leakage from the esophagus. It is now two years since the operation and there has not been any return of the symptoms.

CASE 7.—E. M. L., a man, aged 68, whose chief complaints were difficulty in swallowing, especially solid foods, regurgitation of food, and vomiting had had this condition since two years before examination and had gradually become worse. His general health was excellent and there was nothing of importance in his previous history. Physical examination did not reveal any other pathologic condition.

Roentgen examination showed a medium sized diverticulum of the esophagus presenting in the left side of the neck.

Under 1 per cent procaine the sac was freed without any difficulty and was sewed to the sternocleidomastoid muscle. The patient was able to take fluids after this procedure and was out of bed on the third day. Ten days after the first operation the sac was amputated. No sinus developed. At present, nine months after the operation, he has not had any difficulty in swallowing or any regurgitation.

CASE 8.—Mrs. C. F. S., a woman, aged 47, referred by Dr. Hilmar O. Koefod of Santa Barbara, Calif., complained chiefly of dysphagia, regurgitation of food, gurgling noises in the throat, cough and constipation. This trouble started seven years before examination. The first symptom noticed was gurgling noises in the throat while eating. All the symptoms had increased in severity during the last year. The patient felt very weak and had lost 51 pounds (23 Kg.). Her previous history was negative.

Physical examination showed emaciation. The chest and heart were normal. The blood count was: hemoglobin, 68 per cent; red cells, 2,852,840; leukocytes, 4,100; polymorphonuclears, 53 per cent, and lymphocytes, 47 per cent. The blood sugar was 62 mg. per hundred cubic centimeters of blood, and blood chlorides were 297 mg. per hundred cubic centimeters of blood. The urine was normal.

Roentgen examination showed a large diverticulum of the esophagus presenting in the right side of the neck. No esophagoscopic examination was made. As preliminary treatment the patient was hospitalized for three days before operation. Physiologic solution of sodium chloride, 2,000 cc., was given subcutaneously daily and on the day before the operation 1,000 cc. of a 10 per cent dextrose solution was given intravenously.

The operation was performed under local anesthesia, 1 per cent procaine. The sac was very thin and densely adherent to the lateral wall of the esophagus. The sac was accidentally punctured during the dissection, so a one stage operation was performed. After the sac had been amputated a transfixion suture of chromic catgut number 0 and three interrupted sutures of chromic catgut number 0 were used to reinforce the esophagus. A duodenal tube was inserted through the nose into the stomach and the patient was fed in this manner. On the sixth day she was able to swallow some water and on the tenth day the tube was removed, for at this time she was able to swallow all liquids without difficulty. A slight infection of the neck tissues developed which healed in twelve days, and there was no leakage from the esophagus. It is only two months since the operation, but the patient is able to eat solid food and does not experience any difficulty in swallowing.

CONCLUSIONS

1. The most important etiologic factor in the production of pulsion diverticulum is probably the incoordination of the cricopharyngeal muscle.

2. All patients, especially elderly people, complaining of dysphagia or regurgitation of food should have a barium meal examination.

3. Patients with diverticulum of the esophagus should be carefully examined with the esophagoscope.

4. Gastrostomy is rarely indicated, since forced feeding can be carried out by means of the duodenal catheter.

5. The two stage operation is the safer procedure, as it eliminates the danger of mediastinitis.

6. Local anesthesia is preferred.

7. In this series of seven patients in whom operation was performed, six men and one woman, the average age was 64.

8. There were no fatalities or recurrences.

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ABSTRACT OF DISCUSSION

DR. PORTER P. VINSON, Rochester, Minn.: The roentgen ray is of considerable value in the determination of obstruction in the esophagus, but it simply shows shadows, and one should not accept such a diagnosis as final in the determination of the type of obstruction. This is true in diverticula as well as in other lesions. Diverticula just above the cardia may resemble very strikingly a cardiospasm with irregular dilatation of the esophagus above the point of obstruction. I have seen carcinoma of the upper part of the esophagus that produced sacculation of the proximal portion of the esophagus and resembled very strikingly the sacculation seen in diverticula. In making a fluoroscopic examination of pharyngo-esophageal diverticula, a lateral view should be obtained; the diagnosis should not be made from a single anteroposterior plate. It is unwise to give thick acacia mixture to patients with marked esophageal obstruction because it may produce complete esophageal obstruction. It is not necessary to perform gastrostomy for preliminary feeding of these patients, even if there is marked esophageal closure, if one is familiar with the value of a swallowed silk thread in esophageal instrumentations. If the patient empties the sac before the thread is swallowed and then goes without food or fluid for from four to six hours, the thread will have started down the esophagus, and then it can be used as a guide for the passage of sounds and also the passage of a catheter for feeding. In this way I have been able to tide these patients along until their general condition warranted the removal of the sac. The thread is also of value during the esophagoscopic examination. It is very easy to enter the sac, but it is sometimes very difficult to enter the esophagus. It must be borne in mind that there may be lesions beyond the sac in the esophagus. I do not advocate routine esophagoscopy in every case of diverticulum, but if there is anything unusual about the sac I believe esophagoscopy should be carried out. It is not without its hazards, and the chance of error in a case of a typical sac is so slight that I am not sure that routine esophagoscopy in these cases is warranted. The size of the sac is of considerable importance as far as treatment is concerned. In small sacs it is impossible to perform a two-stage operation and most of the difficulties have been with this type of case. I have not had any experience with the operation advocated by Imperatori. I do not believe that is a very feasible type of operation, and the fact that there are adhesions around the sac, as Dr. Sturgeon has pointed out, would seem to make it impossible in many cases.

DR. FRANK H. LAHEY, Boston: One of my difficulties was that I became too enthusiastic about pulling these sacs out. I pulled them out so far that the esophagus was angulated and obstruction was produced. When this is done, the temporary period of obstruction can be overcome. If the patient is in bad condition, rather than doing a gastro-enterostomy, one can implant a tube through this sac into the esophagus. The sac is dissected under local anesthesia with practically no shock. The patient is fed at once through the tube immediately introduced through the neck of the sac and the necessity of a gastrostomy is avoided. There is one point that has been of value to me. I used to transplant the sacs in a horizontal position, and in some of the cases food would come out into the sac, which would be so distended with air and food that it would become gangrenous. When the sac is placed in an upward position so that the angle which made the shelf before is smoothed out, the sac does not fill, and distention and necrosis are obviated. There are two points about these esophageal diverticula. Local anesthesia makes it possible to do them at any age. Our patients have been as old as 84 years. There is practically no shock. I think that the two-stage operation is absolutely safe; the one-stage operation, because of the proneness of the esophagus not to hold stitches well, is always extremely dangerous and should be avoided.

TECHNIC OF CONVALESCENT SERUM THERAPY IN POLIOMYELITIS*

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AND
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Our purpose in this paper is to describe the procedures involved in the treatment of poliomyelitis with convalescent serum. It is not intended to give the rationale or to discuss here the therapeutic value of this form of treatment. Only so much of the epidemiologic, experimental and clinical evidence concerning its use is given as will be of help in carrying out the procedure with regard to the selection of donors, the preparation of serum and the method of administration in the best manner that the present limited knowledge permits. At the same time, it is well to emphasize the fact that, owing to insufficient clinical data regarding its use and the technical difficulties of testing the titer of convalescent serum, the procedure still has many uncertainties not encountered in the use of other serums which have been reduced to standards as to potency of product, dosage and methods of administration.

METHOD

Choice of Donors.—Convalescent serum treatment is based on the following evidence:

1. One attack of poliomyelitis apparently confers a lasting immunity to the disease.

2. The blood serum of persons who have suffered an attack of the disease and that of monkeys which have passed through an attack of the experimental disease neutralizes the virus.

3. Convalescent serum when tested experimentally exerts a protective action against the virus.

According to this evidence, then, in choosing donors the serum from persons known to have passed through a frank attack of the disease is the serum of choice. While there is reason to believe that milder forms of the disease may confer immunity of the same degree as that in frank cases, persons who have had mild attacks should be chosen with care because of the uncertainties in the diagnosis of such cases.

In certain other diseases, diphtheria, for example, if sufficient amounts of antitoxin are given to neutralize all the toxin produced, the immunity response on the part of the patient is not excited. While at the present time there is no evidence on this point in regard to poliomyelitis, the possibility should be entertained that the serum from convalescent persons who were themselves treated with convalescent serum may not possess the neutralizing property of convalescent serum from untreated patients.

In view of the epidemiologic evidence that the virus of poliomyelitis is much more widespread than is indicated by the occurrence of recognized cases and that a more or less extensive immunizing process goes on in persons not showing symptoms of the disease and, fur-

* From the Harvard Infantile Paralysis Commission.

ther, in view of the fact that the blood serum from normal individuals not known to have had an attack of the disease often neutralizes virus in the same manner as convalescent serum, the question has arisen as to the use of normal adult serum for the treatment of cases. Sufficient tests have not been done to determine the frequency of this property in normal adult serum, and furthermore there is no practical way of testing individual serums for this property, so that for the

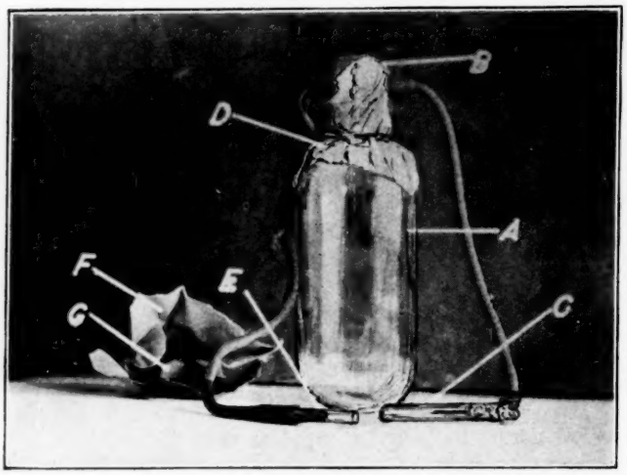

Fig. 1.—Collecting outfit: *A*, 500 cc. centrifuge bottle; *B*, fluffed cotton surrounding glass angles; *C*, needle covered by test tube; *D*, paper protection for neck and lip of bottle; *E*, glass mouthpiece with cotton plug inserted; *F*, paper hood for rubber stopper; *G*, rubber stopper.

present normal adult serum cannot be used with any very great degree of certainty as to its neutralizing property.

Time When Blood Should be Taken.—Experimental data are needed as to the period of time following the disease when the neutralizing property of serum reaches its height, and likewise little is known of the titer of the serum according to the length of time elapsing from the attack of the disease. However, it is reasonable to suppose that the blood may be safely drawn after all symptoms of the acute stage—fever and muscle tenderness—have subsided. Specimens of serum taken years after an attack of the disease still neutralize the virus, so that at present the indications are that this property is permanent.

Donors for serum are obtained through after-care clinics, through local health departments and by direct appeal through the newspapers. In general, the collection of blood for serum can be much facilitated by arranging a bleeding clinic, so that a number of persons can be seen at the same time. To some extent donors are visited in their homes.

Technic.—The apparatus and technic about to be described are probably subject to details of refinement, but in our hands they have proved satisfactory and in very few instances has contamination occurred. In nearly all instances in which contamination did occur, there had been some departure from the standardized procedure, such as removal of paper wrappers and handling of rubber stoppers; in one instance, sputum was permitted to enter the collecting bottle.

APPARATUS

The Collecting Outfit.—This is shown in figure 1. It consists of a 500 cc. centrifuge bottle with a narrow mouth, a two-holed rubber stopper (number 4 or 5) and a similar solid stopper to fit the bottle, two glass tube angles, a rubber connection, an adapter and a 16 gage needle.

The two-holed rubber stoppers should be replaced after two or three sterilizations because of their tendency to become somewhat vulcanized and misshapen, permitting leaks.

The glass tubing is chosen to fit the holes in the stoppers snugly (three-sixteenths inch in diameter), one angle being made somewhat longer than the other so that it projects farther through the lower end of the stopper. Allowing the shorter end to project one-fourth inch and the longer three-fourths inch was found satisfactory.

The rubber tubing used and found to withstand sterilization is red, ribbed tubing, one-eighth by one-sixteenth inch. Two lengths of this tubing are cut, 8 and 16 inches, respectively. The shorter length serves to connect the longer glass angle with the needle by means of a suitable adapter; the longer length connects the shorter glass angle with the mouthpiece. The mouthpiece consists of a piece of straight glass tubing about 2¾ inches long and five-eighths inch in diameter. One end is somewhat drawn out to prevent the cotton plug from being drawn into the bottle when suction is stopped. A plug of cotton is then introduced and wedged into the narrow portion of the tube. Care should be exercised in seeing that the cotton plug fits fairly tightly, and it is better to use nonabsorbent cotton for this purpose.

The needle of choice is a 16 gage, rustless veterinary needle. This size needle has been found to give the best yield without the annoyance of frequent clottings. The needle must be thoroughly cleaned and resharpened after each bleeding. This point cannot be overemphasized.

The neck of the bottle with the stopper and angles, the needle and connections and the solid stopper are specially protected against contamination by being han-

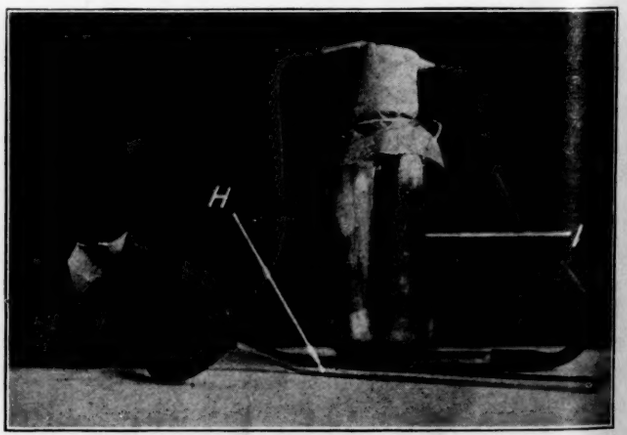

Fig. 2.—Aspirating outfit: *H*, glass tube used for aspirating; *I*, 250 cc. centrifuge bottle.

dled in the following way: A fair sized wad of cotton (nonabsorbent) is wedged between the two protruding angles and then the cotton is fluffed out and made to surround the entire stopper top and the lip of the bottle. A piece of tough paper of sufficient size is wrapped about the entire neck of the bottle and tied with a piece of string with a bow-knot. The needle and adapter and a portion of the rubber tubing are surrounded by a wad of nonabsorbent cotton and a small test tube (4 inches by one-half inch) is fitted over the needle

and the lower end of the cotton plug. The test tube should fit firmly. The solid rubber stopper is covered by a square of stout paper (6 by 6 inches). A heavy pin stuck into the top of the stopper serves to hold the paper in place and likewise as a means of picking up the stopper when needed.

The apparatus is now folded carefully to prevent kinks in the rubber tubing and wrapped diagonally first in one layer of heavy dish toweling, 18 inches square, and then in a second similarly sized square of toweling and pinned with a single heavy pin.

Sterilization in an autoclave for twenty minutes at from 15 to 17 pounds pressure is sufficient.

The tubing, both glass and rubber, should be thoroughly flushed with cold water immediately after use.

When the collecting outfit has been so prepared, it has been found unnecessary for the operator to scrub up between bleedings.

The Aspirating Outfit.—This is shown in figure 2. It is somewhat similar to the collecting outfit. A 250 cc. centrifuge bottle is used instead of the 500 cc. bottle. The glass angles are similarly arranged. The rubber tubing is cut in equal lengths of from 12 to 13 inches; one length of tubing connects the mouthpiece with the smaller angle and the other length connects the longer angle with a piece of glass tubing from 9 to 10 inches long and of the same diameter as is used in making the angles.

The lip and rubber stopper are protected by cotton and paper in the same manner as in the collecting outfit. A suitable solid rubber stopper covered by paper, as described, is included.

The entire outfit is then folded with care to prevent kinking of the rubber tubing, loosely wrapped first in one square of heavy toweling and then in a second layer, pinned and sterilized.

PREPARATION OF DONOR

The donor is placed on a bed or table in a reclining position with the arm extended over the edge, the flexor surface upward. The bend of the elbow is iodinized with half strength iodine. A tourniquet is then applied, half way up the arm. If the veins are not easily seen, it is a good plan to apply the tourniquet first and palpate for the largest vein. When the vein is located, the iodine is applied. It is important to make sure that the pulse has not been entirely obliterated by the tourniquet.

With the donor in position and prepared, the single retaining pin in the collecting outfit is then withdrawn, the outer wrapper of cloth is opened, and the inner wrapper is folded back. The bottle is held at the side of the extended arm, a few inches below the bend of the elbow. The mouthpiece is held between the lips and the teeth and the test tube is carefully removed from over the needle. The cotton about the base of the needle and adapter need not be removed. The needle is then inserted into the largest available vein (usually the median basilic), and when the needle has entered the vein the blood will be seen to flow into the bottle. Care must be used in employing suction; too much suction empties the vein very rapidly and collapses it over the bevel of the needle, causing an interruption of the flow. It is best to gage the extent of the suction by the size and speed of the stream of blood. This is readily determined with a little practice. From this point on any delay in the procedure promotes rapid clotting in the needle. The most frequent cause for delay is a leak at the neck of the bottle caused by a loose stopper. This can be recognized by failure to obtain suction and can be remedied by slight downward pressure on the stopper. Another cause for failure to develop negative pressure in the bottle is a split in the rubber tubing; this should easily be recognized and the outfit discarded before the needle is introduced. Occasionally the rubber tubing kinks and the walls stick together. This accident is recognized the instant suction is attempted and can be promptly remedied by rubbing the walls of the tubing together. If suction is still difficult, the system is clotted and should be promptly discarded; such an accident rarely occurs if the outfit has been properly flushed after the last bleeding and the precaution has been taken to blow through the outfit just before it is wrapped and sterilized. Should the flow become intermittent or very slow, the usual procedure is followed of asking the donor to open and close the hand slowly, and gentle upward massage is employed on the donor's forearm.

When the desired amount of blood has been collected, a sterile sponge is placed over the bend of the elbow and the needle is withdrawn. Without undue delay the bow-knot of the string retaining the paper about the neck of the bottle is drawn and the stopper (with connections) is loosened but not yet removed. The solid stopper is then picked up by the protruding pin and exposed by spreading the paper cover; the stopper of the bottle with its covering of cotton and paper is removed at one time and quickly replaced by the hooded solid stopper. The hood of paper is then firmly pressed about the neck and mouth of the bottle and retained by a rubber band. The bottle is labeled with the donor's name, address and age, and the date of onset of poliomyelitis.

The amount of blood taken from any one donor varies a good deal and depends on the age and general condition at the time of bleeding. In general, between 400 and 500 cc. may be taken from the average adult in good health. The average child of 12 years usually yields half that amount. In taking the larger amount, care must be exercised that the level of blood does not reach the shorter angle, thus leading to the possibility of drawing some of the blood into the mouthpiece. The donor is permitted to rest for a short period and then allowed to go home.

PREPARATION OF SERUM

Immediately after the blood has been collected, or as soon as is feasible, the blood is incubated at 37 C. for one hour to promote clot retraction, and then iced for several hours, or overnight. The bottles are then balanced in pairs and centrifugated for from ten to fifteen minutes at about 1,500 revolutions per minute.

The serum is then aspirated into the smaller outfit prepared for the purpose. This is best done under the type of glass hood commonly used in bacteriology for the transplanting of cultures.

The rubber band is removed carefully with forceps and the stopper is gently loosened but not removed at this point. The aspirating outfit is then unwrapped. The long glass tube is grasped first at the upper end and disengaged from the rest of the apparatus and then the bottle is lifted out of the wrapper. The glass tube is flamed, and the mouthpiece is held between the lips and the teeth. The stopper from the larger bottle is then removed, the mouth flamed and the glass tube introduced a little below the surface of the serum, and suction is applied. This is continued until all serum is aspirated. We have found it more economical to aspi-

rate some of the blood-tinged serum, even though this procedure necessitates centrifugating the smaller bottle. When all the serum has been aspirated the glass tube is removed and permitted to rest on the table, and the same careful procedure is employed in interchanging stoppers as has been described. The bottles are labeled in the same manner, recentrifugated for ten minutes at 1,500 revolutions per minute, and iced.

Enough serum is set aside from each donor for a Wassermann test.

The serum is then tested for sterility by the usual federal tests, as recommended by the Hygienic Laboratory, and put up in ampules. Some of our serum has been used without the addition of a preservative and some has had a preservative added and has been filtered. It must be borne in mind that the addition of a preservative may lower the antibody content of the serum. On the other hand, the addition of a preservative, as in the case of other serums, is desirable, especially if the serum is to be kept any length of time. More knowledge regarding the effect of a preservative on the antibody content of poliomyelitis convalescent serum is needed before this question can be definitely answered.

METHOD OF ADMINISTRATION

There are as yet insufficient data, either experimental or clinical, to determine what constitutes an adequate dose of convalescent serum or what is the best method of administration. Owing to difficulties in obtaining serum, the dosage has been regulated more by supply and demand than by any thought as to its adequacy. It may further be pointed out that the serum used is not standardized, and what would constitute an adequate dosage with one lot might be totally inadequate with another. Whether or not the serum should be given intrathecally, intravenously, intramuscularly or subcutaneously cannot at the present time be stated with any degree of certainty. Since monkeys can be protected from ordinarily fatal amounts of virus by small intrathecal injections of serum, it seems logical to give at least a part of the serum by that route. As the amount of serum so introduced is necessarily small, it seems reasonable to give added amounts by one of the other available methods. The intravenous route has been chosen as the method by which serum would be most quickly made available to the central nervous system.

In brief, the dosage and method of administration that have been employed by us is as follows: The patient is placed on his side with the knees drawn up. The back is prepared with iodine and a lumbar puncture is done. The spinal fluid obtained is examined at the bedside by means of a small, portable microscope, thus confirming the diagnosis. As much fluid as can be obtained is withdrawn. If more than 20 cc. of spinal fluid is obtained, 20 cc. of warmed serum is introduced by means of a syringe through the lumbar puncture needle. Care is used not to put the serum in under pressure. Following the lumbar puncture and intrathecal injection, 60 cc. of serum is introduced into one of the large veins at the bend of the elbow. This can readily be accomplished with the use of a 50 cc. syringe. The serum is warmed and injected slowly. The following day the lumbar puncture is repeated and another injection of serum is given. If the patient still has fever, the intravenous injection is likewise repeated.

REACTIONS

Reactions are frequently encountered, though they seldom are alarming. The most common reaction is an increase in the meningeal signs, increased stiffness of the neck and back and the presence of a Kernig sign. This is accompanied by an increase of cells in the spinal fluid, which may become very turbid. The cellular response does not necessarily parallel the clinical signs. The amount of fluid may be considerably increased at the second puncture or, on the other hand, very little fluid may be obtained.

The next most common reaction is a chill with a sharp rise in temperature, which may reach 105 F. and is frequently accompanied by vomiting. This reaction resembles those seen following transfusions and comes on in from fifteen to twenty minutes after the injection of serum. Whether or not typing of the serum would reduce the frequency of this reaction is not known. In view of the fact that the effect of the donor's serum on the recipients' cells is not always taken into consideration in the selection of donors for transfusions, it does not seem necessary to type convalescent serum.

Another reaction encountered is the complaint of abdominal pain and pain referred to the legs after the intrathecal injection. This is occasionally very severe. It is usually of short duration.

Delayed reactions, such as urticaria and arthritis, have not been seen by us after the injection of human serum.

Untoward reactions are rare and those that we have seen consisted of marked increase in meningeal signs and coma lasting from twenty-four to forty-eight hours. The intrathecal injection should not be repeated under these circumstances.

COMMENT

As has been pointed out, the best method of administration has not yet been determined. Should it transpire that the intravenous introduction of neutralizing serum is adequate, it would appear that under circumstances in which prepared serum is not available, transfusion of whole blood from convalescents may be suitable for the treatment of the disease. In this case the technic would, of course, be the same as that of any other transfusion necessitating blood grouping. In the use of convalescent serum, it should be borne in mind that variable results are not to be unexpected on account of the fact that at present it is possible to use only serum which presumptively possesses a constant neutralizing effect. At the present time it is not possible to standardize the product by discarding lots of serum below standard, as is done in other serum work, such as the production of diphtheria antitoxin.

Blood Antigens.—The interest in the particular topic of blood antigens has been revived of late by investigations centering round several distinct issues, such as the principles of species specificity, the chemical nature of cell antigens, and the human blood groups. Beginning with the blood groups, one of the questions which has arisen is whether the differences of human blood are limited to the four groups or whether there are other variations. For cattle blood a great individual variety with regard to agglutinogens has been established by Todd and White with the use of isohemolysins of sera prepared for the prevention of cattle plague. The view that a similar condition obtains in human blood, though kept in mind since the first studies on isoagglutinins, lacked satisfactory evidence or at least was not based upon readily reproducible experiments. Accordingly, in recent comprehensive reviews of the subject (Lattes, Hirszfeld) little consideration is given to the question. This state of things is of but minor consequence for practical purposes since the main application of blood grouping, namely for transfusion, has, broadly speaking, reached a satisfactory stage. The issue, however, has a bearing upon the general problem of biochemical individuality.—Landsteiner, Karl: Cell Antigens and Individual Specificity, *J. Immunol.*, November, 1928.

STUDIES ON THE BROAD FISH TAPEWORM IN MINNESOTA*

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During the summer of 1927, with the aid of a grant given me by the Committee on Medical Research of the American Medical Association, work was carried on in northern Minnesota on the biology of the broad fish tapeworm, *Diphyllobothrium latum*. Guided by the early discoveries of Nickerson[1] (1906), the place selected for the work was the lake region in the northeastern part of the state.

The history of this parasite in North America is concisely given in my[2] chapter on animal parasites in Abt's Pediatrics. The record of the plan for the study of the problem may be found elsewhere in a brief paper of mine.[3]

The summer's work I had laid out carefully and it was carried out substantially as planned. By the courtesy of the school board at Ely we were permitted to use the biologic laboratory of the high school for our work and it proved to be admirably adapted for the purpose. Drs. Owen W. Parker and J. E. Thompson of Ely gave valuable assistance in many ways. The main work was done by Dr. H. E. Essex, who devoted his attention primarily to the early life history of the parasite. He succeeded in raising the free swimming larvae in great abundance from eggs evacuated in the feces of infected hosts. With these free swimming larvae he infected experimentally three small crustacea, *Cyclops brevispinosus, C. prasinus* and *Diaptomus oregonensis*. The results of his[4] work have been published in part.

In the work of collecting and examining fish from different lakes of the region, I was also assisted for a part of the summer by two graduate students, Arthur L. Hjortland and Darwin M. Short. The former in examining various fish was especially attracted by a conspicuous parasite encysted in the tullibee and was able to work out part of the life history.[5] Dr. Essex[6] found opportunity to follow out on the side part of the development of another fish parasite. Other material was collected which, when worked up and published, will add to a knowledge of the fish parasites associated with the human fish tapeworm and under circumstances possibly confused with it. These collateral studies form a valuable by-product of the investigation.

The larval stages of *D. latum* had been recorded previously by Magath from an investigation of fish in Burntside Lake, where they were found encysted in the body muscles. They occur, however, not only in that lake, as already stated, and not only in that location, but also free in the body cavity on rare occasions and more frequently in the connective tissue in and around the intestinal wall and other visceral organs. Since most, if not all, of these structures are removed in cleaning the fish, such larvae are not factors in infesting the human host, although they are significant in causing infestation of dogs and other hosts.

In the course of the summer we examined in all nine different species of fish taken from five different lakes as follows: from Burntside Lake, *Esox lucius, Cristovomer namaycush* and *Leucichthyes tullibee;* from Fall Lake, *Stizostedion vitreum, Leucichthyes tullibee* and *Catostomus commersonii;* from Farm Lake, *Esox lucius* and *Stizostedion vitreum;* from Long Lake, *Ambloplites rupestres, Catostomus commersonii, Esox lucius, Lepomis pallidus, Leucichthyes tullibee, Perca flavescens, Pomoxis sparoides* and *Stizostedium vitreum,* and from Twin Lake, *Stizostedium vitreum*. Of these only *Esox lucius, Stizostedium vitreum* and *Perca flavescens* were infested with the larvae of *Diphyllobothrium latum*. Fish thus infested were caught in Burntside Lake, Fall Lake and Long Lake. The degree of infestation varied in individual fish from one to many, but the number of cases recorded is too small to warrant commenting on the degree of infestation in different species of fish or in different individual fish. However, it is certain that these larvae are relatively abundant in certain regions and occur in a number of different species of food fish.

Various experiments have been tried by us to achieve the infestation of hosts in the laboratory. These succeeded readily with the dog, in which the number of adult worms recovered after a period of a month or more has regularly approximated the number of larvae fed to the dog originally. Such infestation occurs naturally, as recorded in my preliminary report[3] of this investigation, and observed at Ely later, as well as by others working in other places. Larvae were also fed to young kittens and to full grown cats but in no case with success in securing an infestation with the adult worm. The experimental infestation of the cat was successfully achieved in Germany by Braun, to whom we owe the original demonstration of the relation between larva and adult worm. Two guinea-pigs were also fed viable larvae without any results. In the experiments with dogs, eggs of the parasite were evacuated in the feces four weeks after the plerocercoids were fed to the dog.

As recorded in the preliminary account of the work, the adult parasite was recovered not only from the human host but also from the dog as the result of natural infestation. The existence of a host like the dog, in which the adult can develop readily and by which the ova will be distributed freely and widely over a given territory, is a most unfortunate factor since it increases the difficulties in the way of prompt and complete eradication of the parasite. A similar parasite recovered from the dog was reported from Detroit some time ago by Hall and Wigdor. They regarded it as a different species which they called *D. americanum,* but it may have been only a juvenile form of *D. latum,* such as has been reported from man and baptized under a new name (*D. minor*), only to be recognized later by Zschokke as a variant of the well known species. Warthin has reported the recovery of the adult *D. latum* from a gray fox in northern Michigan; this is probably the adult of the same species I found in the black bear in southeastern Alaska. The variety of the adult hosts insures the maintenance of the parasite through the ready infestation of the intermediate hosts and shows that the parasite is a firmly intrenched menace for the human host.

The results of work carried on by our party were so significant that they were brought to the attention of

* From Report to Committee on Scientific Research, filed June 1, 1928.

1. Nickerson, W. S.: The Broad Tapeworm in Minnesota, J. A. M. A. **46**: 711-713 (March 10) 1906.
2. Ward, H. B.: Animal Parasites, in Abt's Pediatrics **8**: 912-1065, 1926.
3. Ward, H. B.: A Study on the Life History of the Broad Fish Tapeworm in North America, Science **66**: 197-198 (Aug. 26) 1927.
4. Essex, H. E.: Early Development of Diphyllobothrium Latum in Northern Minnesota, J. Parasitol. **14**: 106-109 (Dec.) 1927.
5. Hjortland, A. L.: On the Structure and Life History of an Adult Triaenophorus Robustus, J. Parasitol. **15**: 38-44 (Sept.) 1928.
6. Essex, H. E.: On the Life History of Bothriocephalus Cuspidatus, Tr. Am. Micr. Soc. **47**: 348-355 (July) 1928.

the Minnesota State Board of Health and that body has entered on an extensive study of the subject. It is indeed fortunate that the records of the distribution and abundance of this parasite in all stages of its life history are to be investigated so soon and under such auspices, for results will be obtained much more rapidly than would be possible through the work of a small group.

In calling attention to the importance of this problem so forcibly that the Minnesota State Board of Health has been led to undertake a comprehensive survey of the situation, our party has rendered a significant service. If the work done under this grant had accomplished no more it would have achieved success. My opinion expressed long ago that a parasite of this type was endemic on this continent and that its larvae were widely distributed among fish on the North American continent was neglected and later was criticized on the ground that such larvae were confined to the fish in a single lake in this region. Our work showed them to be widespread among the lakes in this territory and they will be found more widely still. My own records, of which a brief report has already been published, show the presence of similar larvae in fresh water fish from New England to Alaska, but the records are too scanty and too scattered to give any idea of the real frequency of their occurrence. For the elucidation of this and many other important biologic and hygienic problems connected with this parasite there is need of further studies such as that inaugurated in Minnesota.

TUBERCULOUS SALPINGITIS SIMULATING RUPTURED TUBAL PREGNANCY *

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AND
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The clinical picture of rupture of the fallopian tube with intraperitoneal hemorrhage is so commonly due to the erosive and distensive action of a tubal pregnancy that other causes are not considered. However, inflammation, nutrition disturbance of the tube and the pull of adhesions may produce a locus minoris resistentiae with resulting rupture of a fallopian tube and intraperitoneal hemorrhage. These predisposing factors are uncommon.

Although tuberculous salpingitis is commonly associated with ectopic pregnancy, the clinical manifestations of a ruptured tube due to tuberculosis of the tube occurring in the absence of a tubal pregnancy is rare. A review of the literature discloses only one recent report. Therefore, the following interesting case warrants consideration:

REPORT OF CASE

History.—Mrs. M. B., an Italian woman, aged 26, entered the hospital, May 28, 1927, because of severe pain in the lower portion of the abdomen, bloody vaginal discharge, and an amenorrhea of one month's duration. The patient had been in good health up to six weeks before examination, when one morning, after a beer party, she vomited once and experienced a severe and constant pain in the left lower quadrant of the abdomen. She was forced to go to bed for several days. Three weeks later she was seized with the same type of pain and on the same side. It was severe enough to warrant calling a physician, who diagnosed it as a "severe menstruation." This attack of pain was followed by menstruation and the patient was greatly relieved.

May 28, the patient was shopping when she experienced a constant moderately severe pain in the left lower quadrant which gradually became so severe that it made her double up. It became unbearable, and the patient was mentally confused. The last menses had been in April (?), 1927. She was sent to the hospital.

For the last ten years the patient had had each year a pleuritic pain in the chest accompanied by cough, slight fever and a nasopharyngitis. These attacks had remained for from seven to ten days under the usual management of common "colds." In 1909 she had had two attacks of lower abdominal pain, at six month intervals. The patient did not remember any details except that the diagnosis of appendicitis was made during one of these attacks. In February, 1927, the patient had had a bronchopneumonia, and she had had a carbuncle incised in one of the armpits.

The menses began at the age of 12; they had been irregular, occurring from every two to six months up to the age of 15, then every two months and then every six weeks.

The patient had been married since 1925 and had never been pregnant.

There was no history of tuberculosis in the family except that one child died at the age of 7 years following an illness of one and one-half years which was thought to be a chronic osteomyelitis (tuberculous?).

At examination, the patient appeared well nourished but acutely ill and very weak. The temperature and pulse were normal. The head, neck and chest did not show any pathologic changes on examination. The abdomen was round, firm and elastic, without scars. Tenderness and pain were present near the umbilical region, to the left. Vaginal examination did not reveal any pathologic conditions of the external genitalia; the pelvic floor was firm and elastic; the cervix was conical, hard, closed, down and forward; the corpus was not enlarged, but was firm, smooth, up and fixed. There was tenderness over the bladder; the adnexa were fixed, and there were no masses; but exquisite tenderness was present in the left adnexa.

Laboratory Observations.—The urine was straw colored and clear, with an acid reaction and specific gravity of 1.018; a few white blood and epithelial cells were present, but there was no albumin or sugar.

Hemoglobin was 80 per cent; the red blood cells numbered 4,240,000, and the white blood cells, 9,800.

There were a few staphylococci, and many red blood cells found in the vaginal smear. The diagnosis of ruptured tubal pregnancy was made (K. A. M.) and the patient was operated on, May 29.

Operation and Course.—(K. A. M.). At operation from 300 to 350 cc. of liquid blood with clotted blood adherent to the bladder was found in the pelvis. The peritoneal cavity within reach and the pelvic cavity were filled with firm, fibrous adhesions. The tubes were nodular and bound down. A bilateral salpingectomy was performed.

The postoperative course was uneventful, the only fever, a rise to 100 F., occurring on the first postoperative day. The pulse rate never increased more than 100. A recent answer to a questionnaire (May 25, 1928) tells of the patient being well and menstruating every month.

Macroscopic Examination.—The surgical specimen consisted of two fallopian tubes, each measuring 10.5 cm. in length and varying in diameter from 0.5 cm. at the uterine end to 2.5 cm. at the ampullar portion. One tube had a cordlike consistency and below the ampullar portion there was a blood mass. The fimbriated end was closed. The surface was smooth, and no macroscopic tubercles were present. Section of the tube at the hard area showed the lumen filled with a grayish, homogeneous, firm, opaque material. Section through the tube at the blood mass showed the thickened wall containing blood in its inferior portion and coagulated blood extending down from here. There was no blood in the lumen. The second tube showed the same characteristics as the other one except that the fimbriated end was open and there was no blood mass.

Microscopic Examination.—Sections through the tube of cordlike consistency showed a marked proliferation of the endo-

* From the Department of Surgery, Cook County Hospital.

salpinx filling the entire lumen. The stroma and the muscularis were infiltrated with tuberculous tissue consisting of giant, epithelioid and round cells. The follicular spaces formed by the fusion of the villous folds were filled with round cells.

Sections through the tube and adherent blood mass showed the same marked proliferation and fusion of the folds of the endosalpinx. There were areas of caseation and conglomerated tubercles. The muscularis was thinned out and dissociated by a round cell infiltration. The tubal wall adjacent to the blood mass was dissociated by blood. The mesosalpinx showed a round cell infiltration involving also the blood vessels. Only one leaf of the mesosalpinx showed the marked hemorrhage which represented the blood mass. No chorionic villi were present.

The other tube showed the same marked tuberculous involvement of the endosalpinx and muscularis.

COMMENT

The occurrence of tuberculous salpingitis has not been considered uncommon since the thorough investigation of Hegar,[1] in 1886, of tuberculosis of the female generative tract. The incidence of this type of salpingitis has been placed at from 1.5 per cent by Labhardt [2] to 10.9 per cent by Hurdon,[3] but it is usually considered to be about 8 per cent of all salpingitides. At Johns Hopkins Hospital,[4] in 24,155 gynecologic patients, tuberculous salpingitis occurred in 0.83 per cent. Tubal tuberculosis is considered to be more commonly secondary to a pulmonary or peritoneal involvement and not an ascending infection through the uterus. According to Osler,[5] the tubes are involved in from 30 to 40 per cent of the cases of tuberculous peritonitis.

Taylor [6] found forty-two cases of tuberculous salpingitis in sixty-four cases of ectopic pregnancy. Veit [7] says that in the presence of a tubal pregnancy one cannot and should not exclude a genital tuberculosis. However, in 303 tubal pregnancies at Johns Hopkins, Greenberg [8] did not find any tuberculosis. The marked hyperplastic changes in the endosalpinx due to the tuberculous infiltration produce marked distortion of the lumen leading to labyrinthine passages, explaining the common association of ectopic pregnancy as well as sterility in tuberculous salpingitis.

The only report found in the literature of a tuberculous salpingitis giving the clinical appearance of a ruptured tubal pregnancy was that of Ullmann,[9] in August, 1927. His patient was a white woman, aged 26, who had experienced an acute sticking pain in the left lower quadrant of the abdomen, followed by nausea and fainting. When she entered the clinic she was very anemic and almost pulseless. The last menses had occurred on Aug. 15, 1926, or fourteen days before this attack. The diagnosis of ruptured tubal pregnancy was made and immediate laparotomy was performed.

At the operation, 2 liters of fluid and clotted blood was found in the abdomen. The left fallopian tube was thickened, and 1.5 cm. from the uterine end there was a millet-seed sized defect in the wall from which active bleeding was occurring. The left adnexa were removed and the abdomen closed. The patient made an uneventful recovery.

1. Hegar: Die Entstehung, Diagnose and chirurgische Behandlung der Genitaltuberculose des Weibes, Stuttgardt, 1886.
2. Labhardt: Beitrage zur Genital und Peritonealtuberkulose, Ztschr. f. Geburtsh. u. Gynäk. **70**: 532, 1912.
3. Hurdon, in Kelly and Noble's Gynecology and Abdominal Surgery **1**: 168, 1907.
4. Greenberg, J. P.: Johns Hopkins Hosp. Rep. **21**: 97, 1924.
5. Osler: Johns Hopkins Hosp. Rep. **2**: 67, 1890.
6. Taylor: Am. J. Surg. **24**: 173, 1910.
7. Veit: Handbuch der pathologischen Anatomie, 1908; Monatschr. f. Geburtsh. u. Gynäk. **16**: 525, 1902.
8. Greenberg, J. P.: Bull. Johns Hopkins Hosp. **31**: 132 (April) 1920.
9. Ullmann, R. H.: Seltene Ursache einer Tubeuruptur unter dem Bilde einer geplatzten Extrauterin Gravidität, Zentralbl. f. Gynäk. **51**: 2032-2035 (Aug. 6) 1927.

The correct diagnosis in this case was not established until a study of the microscopic section of the tube was made. No chorionic wandering cells or decidual reaction being present, pregnancy was ruled out. Only a marked tuberculous infiltration of the endosalpinx was present, with an area filled with tubercles in which the rupture had occurred. In addition to the absence of gestation elements in the tube, there were no changes in the breasts or uterus and no corpus luteum of pregnancy. No other tuberculous focus was determined in the patient.

SUMMARY

A young white woman giving a history and showing the clinical picture of a ruptured tubal pregnancy had only a bleeding fallopian tube due to the necrosis of the tuberculosis of the tube. No gestation elements were found. The cause of the rupture and hematoperitonitis was thought to be the necrosis of a blood vessel by the tuberculous process.

The tubal tuberculosis was secondary to the peritoneal involvement, which was apparently healed. The hemorrhage was not only free in the peritoneal cavity but had dissected the peritoneum over the bladder and the broad ligament, which gave rise to the pain in the left lower portion of the abdomen and the tenderness over the bladder.

Clinical Notes, Suggestions and New Instruments

TRANSFUSION AND IRRIGATION APPARATUS *

JANVIER W. LINDSAY, M.D.; E. CLARENCE RICE, M.D., AND MAURICE A. SELINGER, M.D., WASHINGTON, D. C.

The apparatus [1] described here is offered for those who may possibly find it of some value, as we have, in the performance of transfusions and the administration of fluids in considerable quantity, by gravity, and in cases in which it is desirable to maintain the injection material at a more or less elevated and even temperature. The apparatus consists of a metal tank which surrounds the glass cylinder, except for a narrow slot at the front. Water at the required temperature is poured into the tank, and the temperature may be maintained or altered by draining the tank through the stopcock at the bottom and refilling. The slot at the front permits the mounting or dismounting of the cylinder and its contents at any time, even during the operation, with the tube and needle attached, and also provides for ready observation of the fluid within the cylinder at all times.

Transfusion and irrigation appartus.

The tank is of such length as to accommodate the usual 300 cc. glass cylinder, without danger of contamination of the top.

A clamp at the back provides for ready attachment to a stand or convenient rack or frame at whatever level may be desired.

We have also had made a multiple container for use when it may be desired to have two or more solutions in readiness for intravenous injection or irrigation, such as saline or dextrose solutions in either the operating room or the office.

1801 Eye Street, N.W.

* From the Clinical Laboratory of the Garfield Memorial Hospital.
1. Made by the Kloman Surgical Instrument Company, Washington, D. C.

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SATURDAY, FEBRUARY 2, 1929

POSTVACCINAL ENCEPHALITIS

In the last few years, a number of instances of disease of the central nervous system have been observed following vaccination both in this country and abroad. A special report [1] of the Commission on Smallpox and Vaccination of the League of Nations Health Organization points out that the situation has received most attention in England and the Netherlands. In England a special commission was appointed for its investigation, and in the Netherlands it has led to a temporary suspension of the measures by which vaccination of children is secured. During the last four years in the Netherlands 139 cases of disease of the central nervous system have been reported following vaccination, with forty-one deaths. England and Wales have reported eighty-seven cases with forty-eight deaths during a period of one year and nine months. Although the cases have varied from mild to severe, from a condition scarcely more serious than the symptoms frequently observed in children after an ordinary "take" to grave forms ending in death, there is a certain similarity in the clinical picture.[2] The onset is usually between the ninth and thirteenth days after vaccination, and the predominant early symptoms are headache, vomiting, drowsiness and fever. Sometimes recovery is complete and rapid, occurring within a week, but sometimes extensive paralyses, coma and death follow. Nearly half the cases terminate fatally, usually within a week of onset, occasionally after a protracted course. The paralyses are general or localized, spastic at first, sometimes becoming flaccid later. Convulsions and tremor may occur; also delirium, irritability, severe pains, and incontinence or retention of urine. The spinal fluid is under pressure and sterile, with normal constituents or with increased chlorides or sugar. Sequelae are infrequent, a point of difference from epidemic encephalitis, although mental deterioration and residual paralyses have occasionally been observed. Mostly children of school age have been affected, and this complication seems to be rare in infants under 2 years.

The pathologic changes sometimes resemble those found in acute disseminated sclerosis rather than those of fatal epidemic encephalitis. The presence of the vaccine virus has been demonstrated in the brain tissue, but this virus may be found following a normal vaccination. There has been no abnormality in the development of the vaccine lesion in these patients, and no uniformity of the method or material used. No one source or method of preparation of the lymph has been implicated, and the cases have been widely separated geographically. Their occurrence does not seem to bear any relation to outbreaks of epidemic encephalitis in the same regions.

Conclusions are not drawn by the commission as to the possible causes of this type of encephalitis, except that it appears to be different from epidemic encephalitis, and that there is no evidence as yet that the virus of vaccinia is responsible in any way. To obtain accurate information as to the frequency of this complication, a special effort is necessary since the symptoms, especially in mild cases, may be regarded as the result of an ordinary uncomplicated vaccination, or may be considered quite apart from the previous vaccination. Whether one believes in a causal relationship between the two events or not, it would be valuable to determine the frequency of encephalitic symptoms occurring at a rather definite interval after vaccination, and to distinguish between a form of true encephalitis and the fever and malaise that bear no relation to disease of the nervous system.

The countries that have evidently suffered most from postvaccinal encephalitis are those in which vaccination is practiced chiefly at school age or during an outbreak of smallpox. Since the nervous complications are rare under 2 years of age, the safest procedure seems to be universal vaccination in infancy. The frequency of encephalitis in comparison to the number of vaccinations performed yearly remains at all events exceedingly small. While the risk may be recognized, it should not be magnified into an objection against universal vaccination. The risk of smallpox is certainly infinitely greater.

1. League of Nations Health Organization, Commission on Smallpox and Vaccination, report on the session held at Geneva, Aug. 22 to 25, 1928.

2. As reported by the Rolleston Committee.

THE ERYTHROBLASTIC ANEMIA OF CHILDHOOD

Clinical hematology is undergoing a lively development in the form of clearer differentiation of the precise types of disorder that may lead to characteristic changes in the erythrocytes—their morphology, production and destruction. Until such diagnostic features are more clearly developed and understood, progress in treatment is likely to be impeded. This does not apply necessarily to empirically discovered aspects of therapy but rather to those slowly acquired facts on which scientific advances in medical practice rest. Recently attention was directed in THE JOURNAL to the presumably mistaken widespread impression that types of anemia simu-

lating the pernicious anemia of adults do not occur in infancy and early childhood.[1] Another disillusionment has been offered in reference to what has long been known in medical literature as von Jaksch's anemia. The original description,[2] as might be expected from the time it was written, was far from clear. A review of the available records has impressed Cooley[3] of Detroit with the difficulty of fitting them into any consistently characteristic group or category of disorder.

Changes in the blood cells, enlargement of the spleen and association with such diseases as rickets or syphilis surely no longer constitute sufficiently differentiating features. Two years ago Cooley debated whether von Jaksch's disease is hemolytic in nature. He then wrote: "Whether there is any definite anemia corresponding to von Jaksch's description and dependent on some other peculiarity of the blood forming mechanism than that which causes the hemolytic disease cannot now be determined, but we think it improbable. We believe that the existence of a characteristic anemia essentially connected with either syphilis or rickets has not been proved." More recently Cooley[4] has advised the discarding of the designation "von Jaksch's anemia." He has, however, described a more definite disorder of childhood under the new designation of erythroblastic anemia. This describes the most conspicuous hematologic characteristic, namely, the extremely large number of erythroblasts to be found in the circulating blood, especially after splenectomy.

Three diseases of early childhood, congenital hemolytic icterus, sickle cell anemia and erythroblastic anemia, are apparently rather closely related not only in symptomatology but probably also in fundamental etiology. Probably each of them was at times included in the older classification of von Jaksch's anemia. Cooley points out that in all three conditions one must recognize either a congenital disease or a pronounced and peculiar congenital diathesis. Hemolytic jaundice and sickle cell anemia are definitely hereditary and familial, at least, as to diathesis. The erythroblastic anemia is not known to be hereditary, for which there is an obvious probable explanation in the fact that its subjects are not known to reach adult life. It is, however, often familial. Sickle cell anemia is racial and possibly was originally limited to a small section of the negro race. The erythroblastic anemia is so conspicuously more common in the Mediterranean races as to seem almost peculiar to them; while hemolytic jaundice, though more widespread than the other two, tends decidedly to be more frequent in certain regions and among certain peoples, and to appear only sporadically elsewhere. In other words, in all three the diathesis seems distinctly a matter of family or race. There is extreme hyperplasia of the marrow in the erythroblastic anemia. In sickle cell anemia it is apparently less constant and less pronounced, while in hemolytic jaundice it seems not to have been especially noted. Removal of the spleen has different results in the three diseases. In hemolytic jaundice, with the exception of rare cases of the pernicious type, the result is usually almost, if not quite, a complete cure. Without any remarkable immediate reaction, hemolysis stops or is greatly diminished, the anemia and jaundice disappear and the patient is to all intents well. In sickle cell anemia, after early splenectomy, there is again no pronounced immediate reaction. In the erythroblastic disease, splenectomy is followed by a remarkable increase of the erythroblasts in the blood, lasting over years; but so far as available reports are concerned there seems to be little definite improvement in the patient. Hemolysis and jaundice, if present, may be temporarily lessened, but they return and the disease process continues as before. The benefit to the patient lies mostly in the removal of the drag of the heavy spleen. The etiology of these varied types of abnormal red cell presents a problem of pressing importance.

1. Primary Anemias in Infancy, Current Comment, J. A. M. A. **92**: 316 (Jan. 26) 1929.
2. Von Jaksch, R.: Wien. klin. Wchnschr. **2**: 435, 1889; Prag. med. Wchnschr., 1890, p. 387.
3. Cooley, T. B.: Von Jaksch's Anemia, Am. J. Dis. Child. **33**: 786 (May) 1927.
4. Cooley, T. B.: Likenesses and Contrasts in the Hemolytic Anemias of Childhood, Am. J. Dis. Child. **36**: 1256 (Dec.) 1928.

CONTROLLED EXPERIMENTATION, HEMOCHROMATOSIS, AND THE ALCOHOL PROBLEM

Advances in the natural sciences have been attained mainly by study of natural conditions and phenomena. Recently such studies have been extensively supplemented or replaced by the experimental method, including efforts to produce conditions similar to those which are the subject of investigation and to produce the condition at will. When such endeavors are successful, the results and the factors causing the results may be examined scientifically. In a number of sciences, paleontology for example, use of the experimental method is difficult or impossible. In medicine, however, it is not only extensively employed but is now generally regarded as indispensable. Although conclusions obtained in other ways may be important, those derived from experimentation are rated higher. The great reduction in morbidity and mortality from study of the infectious diseases in animals to which they have been transmitted is the special pride of medicine. Indeed, this triumph has been the main topic of more or less important public addresses for many years.

Today research in medicine by the experimental method is engaged with chronic diseases, disorders of metabolism and cancer. Widespread application of the experimental method to medical investigation has brought with it the development of specialists in research. The time necessary for probation and training of these experimentalists is as long and the requirements are fully as strict as with any of the other specialties of medicine. But there are few master experimentalists in any science. In medicine they

are a mere handful as compared to the number of specialists recognized as leaders in such branches as internal medicine, surgery and otolaryngology.

Experiments in which animals are employed require unusual vigilance. Two sets of animals are used as a rule, one for the experiment and another to control it. Except for what is done to the first lot to confirm or determine something new, all the animals are treated alike. If one animal is handled or has its environment changed and these are not essential details of the experiment, correct usage demands a corresponding treatment and management of each other animal. The nature and amount of the food and of the fluids consumed are identical, and many other particulars are carefully supervised. For many experiments two or more groups of animals are required as controls, each for some particular indispensable information. Such details of experimentation require intensive forethought and calculations. In spite of meticulous attentions, which at the time are considered sufficient to safeguard the experiments effectively, the neglect to employ infallible control experiments is appalling. In fact, the paths to new and fruitful knowledge are so littered and encumbered with the wrecks and tragedies of defective experimentation that tracing the source of most of the advantages of modern medicine is an involved and difficult undertaking. Nor are these matters surprising, when the innumerable unknown factors and the intricacy of apparatus requisite for animal experimentation are taken into consideration.

An interesting outcome of these restrictions and embarrassments is contained in the recent announcement by Flinn and VonGlahn [1] that copper and its compounds do not cause the deposition of pigment in the livers of guinea-pigs, rabbits or rats. This assertion will seem highly important to those who have watched hemochromatosis emerge as a definite disease from the earlier conceptions included in bronzed diabetes, pigmentary cirrhosis of the liver and kindred conditions. It is a categorical denial of the reports by Mallory and his pupils.[2] The amount of copper in the tissues of human or experimental hemochromatosis is about the same as that in healthy tissues or in tissues diseased in other ways and tested as controls. After hemochromatosis was produced in rabbits with sodium acetate and doubts arose over its being a manifestation of copper poisoning, Flinn and VonGlahn decided to use additional controls for their experiments, some directly related to the diet of the animals. The details of all their experiments cannot be related here, but for the present it seems that copper is exculpated and that experimental hemochromatosis in rabbits is probably caused by a diet top-heavy with carrots. One may well wonder what the next curtain-raising will expose.

Quite reliable control experiments, unwittingly executed, are sometimes discovered by studying human affairs. Ethnologists specializing in folk-lore make quite a point of the similarity of practices and legends among primitive tribes far removed from one another. The recent studies of the influence of the World War on alcoholism in different countries in middle Europe [3] disclose a remarkable uniformity: a progressive diminution of delirium tremens, alcoholic psychosis and other mental troubles due to alcohol observed in different institutes for psychiatry beginning with and continuing throughout the war; then a return to prewar conditions and this, in its turn, followed by an increase well beyond prewar alcoholism. The federal commission, which, it is understood, will ascertain the effects of prohibition, may find it exceedingly profitable to determine the measure with which experience in Europe with alcohol and its consequences may be utilized as a valuable control experiment for what has transpired here during the same period.

1. Flinn, F. B., and VonGlahn, W. C.: A Chemical and Pathological Study of the Effects of Copper on the Liver, J. Exper. Med. **49**: 5 (Jan.) 1929.

2. Mallory, F. B.; Parker, F., Jr., and Nye, R. N.: Experimental Pigment Cirrhosis Due to Copper and Its Relation to Hemochromatosis, J. M. Research **42**: 461 (Oct.-Dec.) 1921. Mills, E. S.: Hemochromatosis with Special Reference to Its Frequency and to Its Occurrence in Women, Arch. Int. Med. **34**: 292 (Sept.) 1924. Mallory, F. B.: The Relation of Chronic Poisoning with Copper to Hemochromatosis, Am. J. Path. **1**: 117 (Jan.) 1925; Hemochromatosis and Chronic Poisoning with Copper, Arch. Int. Med. **37**: 336 (March) 1926.

3. Vogler, Paul: Beitrag zur Alkoholstatistik in Tirol, 1904-1926, Ztschr. f. d. ges. Neurol. u. Psychiat. **111**: 661, 1927.

Current Comment

INCOME AND INVESTMENT IN MEDICAL PRACTICE

A study now being conducted by the American Medical Association concerns the capital investment and income in private practice. In every avenue of commercial and industrial adventure, the investment of a stated capital is expected to provide a certain income return; conversely, a stated income presupposes the investment of a certain amount of capital. Although medicine will probably never be practiced on the commercial basis of fixing costs, there is need for accurate and sufficient data from which can be shown the amount of capital investment required of physicians to establish and maintain a reputable medical practice and the income return which may reasonably be expected from such an investment. A number of organizations are now assembling data for the Committee on the Cost of Medical Care, a committee that was organized at the time of the Washington session of the American Medical Association by a number of persons representing private medical practice, public health, and institutions and organizations closely allied to medicine, social economics and the public. The study, which is being conducted from the headquarters of the American Medical Association in the interest of the entire medical profession, is entirely impersonal and anonymous. There is not the slightest chance of disagreeable or embarrassing results from details or figures given on the returned questionnaires. Neither the organization nor any individual member is in any sense committed to any theories as to the outcome of the study, and any conclusions must of necessity depend

on an analysis of facts. The value of this work will therefore depend on the accuracy, completeness and promptness with which physicians furnish the desired information. On advertising page 37 of this issue is a blank which every subscriber is asked to fill out and mail to the headquarters office. The individual physician can thus make an important contribution which will assist in solving some of the complex problems of the future organization of medicine. Every physician should consider this his study and should accept it as his duty to return complete and accurate data for each of the several items.

BOTULISM AND HOME CANNING

Again attention must be directed to an outbreak of botulism from home canned string beans canned by the so-called cold pack method. This outbreak occurred in Westfield, N. Y., and the causative meal was served Christmas day among Italians. Eight cases and four deaths have so far been recorded, and several persons who attended the meal showed symptoms that have not been diagnosed as those of botulism. Heretofore, home canned string beans have caused thirty-nine outbreaks of botulism, far in excess of any other food. In fact, the home canned string beans canned by the cold pack process, particularly in certain parts of the United States, are a potential and continuous menace. Only boiling for a sufficient length of time after removal from the glass jar before the beans are served can make them reasonably safe. The departments of home economics in agricultural colleges, universities and their extension divisions throughout the country should plan a vigorous educational campaign in order to prevent these preventable deaths. Many of the recipes for the home canning of vegetables antedate the present-day knowledge of botulism and with a few exceptions no effort has been made to correct them. Although it will admittedly be difficult to reach many of those who are particularly endangered by foods inadequately preserved in the home, the public should be told repeatedly that string beans and every nonacid vegetable may be rendered safe either by sterilization for a sufficient time and temperature in a pressure cooker or by drying or by the addition of a 10 per cent brine solution to the cold pack method. Enough information is now available to enable the authorities to formulate definite rules to guide the home canner. Most of these facts were fully brought out in the original report of the California Botulism Commission.[1]

BY-PRODUCTS OF THE DAIRY INDUSTRY

Milk is of interest to the physiologist and to the clinician because of its value as a food. The secretion of the mammary gland is something as near to a perfect diet as can be found in one natural food material. Proteins of good quality, salts and vitamins—the essential triumvirate of an adequate ration—are present, and only when the requirement for gross calories increases with growth of the body does milk cease to be the ideal food. A recent review[2] of the relation of chemistry to the dairy industry points out that in 1926 only 46 per cent of the milk produced was sold for household purposes, presumably in the original wet state. This emphasizes the importance of the manufacture of other products in the dairy industry. Among these are butter, cheese, ice cream, condensed milk and dry milk powder, all of which are highly important in the dietary of the nation. However, the by-products of the dairy industry, while not of primary interest in nutrition, constitute materials of commerce whose character, volume and value are not always realized. Approximately 23,000,000,000 pounds of skim milk is produced in the manufacture of butter alone. This by-product contains 800,000,000 pounds of protein, some of which is used to make soft cheese and some in the manufacture of casein plastics, adhesives, and substitutes for tortoise shell, bone and celluloid, but much of which is wasted. About 1,000,000,000 pounds of skim milk is now being converted into dry powder, which is used extensively in the ice cream and baking industries. The whey resulting from the manufacture of cheese amounts to about 4,000,000,000 pounds annually, and the field of the utilization of this potentially valuable by-product has scarcely been touched. Lactose, fat, salts and protein can all be recovered from the whey. These rough data convey an idea of the magnitude of one phase of the use of milk little realized by those to whom it represents primarily a food. The dairy husbandry experts are constantly urging greater and more economical production of milk through improved feeding and breeding. The industrial chemist now points out the tremendous conservation that can be practiced, once research has shown the way to utilize the by-products of the dairy industry.

1. Geiger, J. C.; Dickson, E. C., and Meyer, K. F.: Bull. 127, Hyg. Lab., U. S. P. H. S., 1922.
2. Holm, G. E.: J. Indust. & Engin. Chem. **20**: 1312, 1928.

Association News

MEDICAL BROADCAST FOR THE WEEK

The American Medical Association Morning Health Talks and Evening Health Hints from Hygeia

The American Medical Association broadcasts daily at 10 o'clock in the morning, central standard time, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of February 4 to February 9 will be as follows:

February 4. "Undulant Fever," by Dr. Morris Fishbein.
February 5. "When the Child Loses His Appetite," by Dr. R. G. Leland.
February 6. "Conserve Your Hearing," by Dr. R. G. Leland.
February 7. "Successes and Failures of Surgery," by Dr. R. G. Leland.
February 8. "Jaw Versus Brains," by Dr. John M. Dodson.
February 9. "The Layette," by Dr. R. G. Leland.

Evening Health Hints from Hygeia at 8 O'Clock, Central Standard Time

February 4. Snow Sculpture Brings Outdoor Recreation.
February 5. Balanced Diet Means Better Teeth.
February 6. What to Do for Nosebleed.
February 7. Wrinkles.
February 8. The School Janitor.
February 9. To Prevent Pneumonia.

Diphtheria.—In spite of the fact that toxin-antitoxin will prevent diphtheria and a Schick test will discover the susceptibles, diphtheria continues to be the third cause of death in the United States for children under 6 years of age and the mortality in recognized cases is still 10 per cent.—Ball, E. B.: Diphtheria Immunization Campaign, *Illinois M. J.*, January, 1929.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Physician's Gift to Medical School.—The chairman of the Semicentennial Commission of the University of Southern California announces a gift to the medical school of $100,000 from Dr. and Mrs. Wesley Wilbur Beckett, Los Angeles. The medical school was reopened last September after having suspended operations for several years. Dr. Beckett has long engaged in practice in Los Angeles; he is vice president and medical director of the Pacific Mutual Life Insurance Company and a director in other corporations. In transmitting the gift to the university, he said that there is no worthier object for gifts than the school that will train young people to heal the sick and apply themselves to health problems of the community.

Identification of Mushrooms. — This is the mushroom season in California. The University of California offers its services to the public in the identification of mushrooms in order to assist in the prevention of cases of poisoning. Fourteen cases of poisoning were reported recently in San Francisco alone. There are not many regions, if any, which have a larger variety of fungi, including mushrooms, than California. There is no dependable rule, the university says, for distinguishing the good from the bad mushrooms. Samples under suspicion may be sent to the botanic laboratories of the University of California, Botany Building, Berkeley. Any species will be identified and information given as to its edibility. An attempt is being made to eliminate mushroom poisoning from California by precautionary measures.

Outbreak of Foot and Mouth Disease.—The bureau of animal industry, U. S. Department of Agriculture, announced, January 19, that an outbreak of foot and mouth disease had occurred in a herd of garbage-fed hogs near Whittier. Experienced veterinary inspectors from nearby states were immediately assigned as a precautionary measure, and veterinary officials in all the states and nearby foreign countries were notified. The entire herd of 3,500 swine was destroyed to stop the outbreak and the outlook for prompt eradication is favorable. The source of the infection appears to have been garbage from a ship that had visited a foreign port and later docked at San Pedro. The disease had not appeared on any new premises up to January 18, but as a safeguard, a quarantine zone was established by state and federal governments.

Bills Introduced.—Senate bill 52 provides for the examination and certification of persons other than registered nurses engaged in the practice of nursing for compensation. Senate bill 103 creates a commission to select a site for an additional state insane asylum. Senate bill 104 creates a state board of nurse examiners. Senate bill 106 amends the medical practice act by adding a new section relating to the impersonation of investigators of the board of medical examiners and provides a penalty for the violation. Senate bill 182 regulates the sale, possession and use of habit-forming narcotic and other dangerous drugs. House bill 122 would eliminate the office of coroner and provide that every licensed embalmer who should give an official bond and take an oath of office should be a coroner for the county in which he resides and have the powers and duties hithertofore vested in the coroner.

First Permanent Appointments to Medical Faculty.—The University of Southern California announces that Paul S. McKibben, Ph.D., associate professor of anatomy, University of Michigan Medical School, Ann Arbor, has been appointed to the chair of anatomy in the newly organized school of medicine of the University of Southern California, and that Harry J. Deuel, Jr., Ph.D., professor of physiology at the University of Maryland School of Medicine, Baltimore, has been appointed to the professorship in biochemistry. These are the first two permanent appointments to the faculty. Dr. McKibben received his Ph.D. from the University of Chicago, where he formerly taught; in 1913 he took charge of the courses in anatomy at the University of Western Ontario, and in 1927 he went to Michigan. Dr. Deuel served with the U. S. Department of Agriculture two years and did graduate work in biochemistry at Yale from 1920 to 1923; he then taught at Cornell University Medical College, going to Maryland as professor of physiology in 1928.

COLORADO

Bills Introduced.—House bill 362 makes it unlawful for spectacles or lenses for the correction of vision to be sold unless a duly qualified licensed physician or licensed optometrist is in attendance. House bill 423 provides that the boards of county commissioners shall provide for the care, treatment, transportation and physical improvement of indigents with infantile paralysis.

Open Trail to Physician's Bier. — On a hill in the cattle country near Craig, where he had lived in a cabin for twenty-five years, the neighbors buried Dr. Barzillai A. Arbogast, January 9. They opened a seven mile trail through the snow to his bier. Dr. Arbogast served the cowboys and homesteaders in these mountains, supporting himself from the offerings of patients. One of his last calls was an eighty mile journey partly by automobile and wagon and partly on foot to the cabin of a mountaineer. Dr. Arbogast graduated from the Denver College of Medicine and did graduate work in Paris and Berlin. Influenza caused his death.

FLORIDA

Society News.—The January meeting of the Duval County Medical Society, Jacksonville, was addressed by Dr. James Knox Simpson on pitfalls in abdominal diagnosis.——The Lake County Medical Society was addressed, recently, by Dr. Chambers M. Tyre, Eustis, on syphilis in the infant and child.——Among the case reports presented to the Pinellas County Medical Society in November, 1928, was one on spirochetosis by Dr. Roscoe H. Knowlton, St. Petersburg, and one on spore infection of the lung by Dr. Norval M. Marr, St. Petersburg. —— The Putnam County Medical Society was addressed, December 13, at Palatka, by Dr. James K. Simpson on "Surgery of the Biliary Tract"; Dr. Wilfred M. Shaw, the roentgen ray; Dr. H. M. Taylor, "Electrocautery in Treatment of Laryngeal Tuberculosis," and Dr. Edward Jelks, intestinal obstruction. —— At the annual banquet of the Hillsborough County Medical Society, Tampa, January 17, the principal address was by the president of the Florida State Medical Association, Dr. Frederick J. Waas of Jacksonville.

INDIANA

Bills Introduced.—Senate bill 21 provides for the establishment of a psychiatric hospital as a department of the University of Indiana. Senate bill 26 provides that when an inmate of a state hospital for the insane is found to have an estate not necessary for the maintenance of dependents, the expense incurred by the state shall be a lien against such estate. Senate current resolution 2 requests Congress to establish a United States veterans' bureau hospital within the state of Indiana. House bill 362 prohibits the sale of spectacles unless a duly licensed physician or optometrist is in attendance at such establishment.

Report on Rabies.—There was a decrease in the number of rabid animals examined by the laboratory of the state department of health during 1928 as compared with 1927, the number of positive cases being 525 and 634, respectively. This does not necessarily mean, says Dr. Charles F. Adams, Indianapolis, that an actual decrease in rabies has taken place, as physicians and veterinarians may be depending more on clinical evidence and starting treatment without having the brain of the suspected animal examined. The epidemic of rabies among dogs, he says, is still present in great force and the number of people bitten was comparable during 1928 to the number in 1927. While rabies occurs throughout Indiana, there are two important centers of distribution, one surrounding Indianapolis, the other at Terre Haute. The state board of health of Indiana now uses twenty-one injections of the Pasteur treatment for head bites, and since increasing the number of injections in 1927 has successfully treated sixty-three patients who had been bitten on the face or head.

Society News.—The Indianapolis Medical Society was addressed, January 29, by Dr. David L. Smith on "Cesarean Section Mortality in Indianapolis," and by Dr. Percy E. McCown on "Primary Carcinoma of the Ureter"; the society was addressed, January 15, among others, by Dr. Clark E. Orders, on "Acute Suppurative Appendicitis with Localized Abscess, Complicated with Influenza," and Dr. Howard L. Norris, "Postoperative Tonsil Hemorrhage Due to Vincent's Angina."——The Tippecanoe County Medical Society, Lafayette, was addressed, January 10, by Dr. William F. McBride, Dayton, on "Is the Country Physician Becoming a Thing of the Past?" —— The Indianapolis Medical Society has elected Dr. Murray N. Hadley president for the ensuing year.——The

Howard County Medical Society, Kokomo, devoted its January 4 meeting to a consideration of the influenza and pneumonia situation in that community, the speakers being Drs. Reuben A. Craig, Paul W. Ferry and Ralph E. McIndoo.——The Muncie Academy of Medicine was addressed, January 8, by Dr. John Phillips, Cleveland, on "The Clinical Significance of Jaundice."——The Adams County Medical Society, Decatur, was addressed, January 8, by Dr. Beaumont F. Cornell, Fort Wayne, on "The Newer Things in Anemia."——Several cases of smallpox were reported at Jasonville and Sullivan about January 4.——The Hancock County Medical Society, Greenfield, held a symposium, Dec. 13, 1928, on differential diagnosis of abdominal conditions; the speakers were Drs. Charles H. Bruner, Lawrence B. Rariden, Ernest R. Sisson, Ralph N. Arnold, Charles M. Gibbs and Joseph L. Allen.——Dr. Samuel E. Earp has presented the *Indianapolis Medical Journal* with a "fine oak filing cabinet."——Dr. Walter H. Vance, Markle, addressed the Huntington County Medical Society, January 15, on "Leukoplakia of the Kidney."——Dr. Milton T. Jay has resigned as health officer of Jay County.

KANSAS

Bill Introduced.—Senate bill 3 provides for pensions for the indigent blind.

Society News.—The Clay County Medical Society was addressed, Dec. 19, 1928, by Drs. Benjamin Landis Elliott and Damon O. Walthall, both of Kansas City, Mo., on "Headaches" and "Contagious Diseases," respectively.

LOUISIANA

Tulane Establishes a Behavior Clinic.—The school of social work of Tulane University, New Orleans, has established a behavior clinic which, it is reported, will begin work February 4. A study of the child will be made along four lines: a social history will be taken; physicians will make a physical examination; psychologists will test the mentality, and in case of abnormality a psychiatric study will be made. These specialists then will confer to determine whether the child is suffering from a disease or other ailment. The behavior clinic will be open to all, but purely medical cases and cases of extreme delinquency will not be treated. Garrett P. Wyckoff, LL.D., director of the school of social work and professor of sociology, will be assisted by J. M. Fletcher, Ph.D., and others. The dean of Tulane University of Louisiana School of Medicine will appoint physicians to take charge of the medical treatment of the cases. There are behavior clinics in Boston, New York, Chicago, Philadelphia and San Francisco.

Operators of the Fife Clinic Jailed.—Following conviction on charges of practicing medicine without a license, George T. Hanning and P. R. June, operators of the "Fife Brothers Health Building Clinics of America," in Shreveport, were sentenced to ten days in jail and fined $50, Dec. 11, 1928. According to the Shreveport *Tribune*, they immediately began serving the sentence. W. W. Fife, a chiropractor of New Orleans, was also fined $100 and sentenced to sixty days in jail, with thirty days additional for default. His case, his attorneys are reported to have said, will be taken to the state supreme court. Fife was convicted of being an accessory, although he was said to have been absent from Shreveport while the clinic was in operation. Joseph Fife, the brother, had not yet had a hearing. Testimony indicated, it is said, that all kinds of cases were treated by massage; evidence to the contrary indicated that the brothers prescribed treatment in some cases and refused treatment in others. Hanning and June are reported to have said that on expiration of their jail sentences they would continue to operate the clinic (THE JOURNAL, Dec. 18, 1926, p. 2099; Dec. 15, 1928, p. 1900).

MAINE

Bills Introduced.—Senate bill 1 provides for the registration and licensing of barbers and for the creation of a board of barber examiners. Senate bill 7 appropriates $160,000 each for the fiscal years ending June 30, 1930, and June 30, 1931, for treatment at public and private hospitals of indigent patients.

MASSACHUSETTS

Licenses Restored and Suspended.—The Massachusetts Board of Registration in Medicine at a meeting, January 3, restored the license of Dr. Christian A. Nelson of Cambridge, effective January 26. The registration of Dr. Robert Sullivan was suspended for a month on a charge of withholding funds from a patient. At a meeting of the board of registration, Dec. 13, 1928, the registration of Manford D. Spalding of Auburn, an osteopath, was suspended for a month for using the designation "M.D.," when his only degree entitles him to use the designation "D.O." Dr. George J. Hebert, Holyoke, was deprived of his right to practice in Massachusetts, having served a jail sentence for performing an illegal operation.

Society News.—The Harvard Medical Society met at the Peter Bent Brigham Hospital, January 22; Dr. Cornelius G. Dyke discussed treatment of postoperative massive collapse of the lung. The society was addressed, Dec. 18, 1928, by Francis G. Benedict, Sc.D., director, Carnegie Nutrition Laboratory, on "The Respiratory Quotient and Its Significance."——The Trudeau Society of Boston was addressed, January 22, by Dr. Henry D. Chadwick of the Westfield State Sanatorium on "Pulmonary Tuberculosis of the Adult Type in Childhood and Adolescence."——The Plymouth County Medical Society was addressed, January 17, by Dr. Edward J. Denning, Boston, on influenza, and by Dr. Michael F. Fallon, Worcester, on "Endometrial Implant in the Umbilicus with Menstrual Reaction."——Dr. Harold L. Higgins, Boston, will lecture, March 8, at 46 Beacon Street, under the auspices of the Massachusetts Dietetic Association on "Control of Bacterial Flora by Diet," and Dr. Frederick S. DeLue, Boston, April 12, on "Diet in Poliomyelitis."

Bills Introduced.—Senate bill 169 requires physical and mental examinations of applicants for licenses to operate motor vehicles. Senate bill 172 allows the registrar to require the reexamination of any person licensed to operate a motor vehicle. House bill 175 provides that two or more towns may by vote form a district to employ a health officer. House bill 202 provides that no unvaccinated child under 14 years may be admitted to a private or public school unless he shows a certificate from a physician that his health would be endangered by vaccination. House bill 214 provides that the institutions commissioner of Boston may admit to the Long Island hospital any person whose settlement is in or who is employed by the city of Boston and may establish charges and treat indigents free of charge. House bill 524 provides for an inspector of milk to be appointed by the county commissioners of Berkshire County. House bill 525 defines pasteurized milk as natural cow's milk, not more than seventy-two hours old, subjected for a period of not less than thirty minutes to a temperature of not less than 140 nor more than 145 F., or heated by the electric conductivity method to a temperature of not less than 160 F. in the milk entering the cooling system of the apparatus, or treated by any other method equally efficient in the destruction of pathogenic germs. House bill 713 prohibits the sale of "patent medicines" containing more than 6 per cent of alcohol, except on the prescription of a physician. House bill 801 provides that when an injured employee has, at his own expense, caused a physician to testify in his behalf, if the decision of a single member of the department is in favor of the employee, the cost of the physician so testifying may be added to the amount awarded the employee. House bill 839 provides that no person who has dairy animals shall, after two annual, three semi-annual or so many tests as may be necessary as to make a clean tuberculin free herd, be entitled to any further tests by the director of the division of animal industry. House bill 840 provides that the director of the division of animal industry may declare any town or county a quarantine area and test by the tuberculin test all animals within said area. House bill 291 would repeal section 76, chapter 111, General Laws, as amended by chapter 284 of the Acts of 1926, and section 77 of said chapter 111, providing for the payment of a subsidy for the hospitalization of pulmonary tuberculosis. House bill 325 authorizes Cambridge to incur indebtedness in an unnamed amount for an erection of an addition to the Cambridge city hospitals. House bill 588 authorizes the town of Amesbury to maintain a public hospital and to acquire by purchase or lease the Amesbury Hospital.

MICHIGAN

Dr. Lescohier Promoted.—Dr. Alexander William Lescohier has been appointed general manager of Parke, Davis and Company, Detroit, according to the Detroit *Free Press*. Dr. Lescohier, a graduate of Detroit College of Medicine, has been with Parke, Davis and Company about twenty years, his recent assignment was assistant to the president; formerly he was director of the department of experimental medicine.

"Eye Specialists" Swindle Farmer.—Charles Van DePlas, a farmer near Auburn, Mich., informed the state police at Lansing, January 11, it is reported, that he paid $6,350 to men posing as eye specialists for the treatment of his daughter's eyes at his home. The specialists, who visited his farm, Aug. 14, 1928, recommended an immediate cataract operation on his daughter's eyes, which they offered to perform on the spot for

$1,850. Another specialist returned later to treat the case and advised the family to purchase a "machine" to guarantee saving the sight, for which the farmer states that he paid $4,500 in cash.

Society News. — Dr. Rolla E. Dyer, assistant director, Hygienic Laboratory, U. S. Public Health Service, Washington, D. C., addressed the Wayne County Medical Society, Detroit, January 22, on "Standardization of Scarlet Fever Biologic Products"; there was a symposium on scarlet fever in the afternoon at the Herman Kiefer Hospital.——The Oakland County Medical Society, Pontiac, was addressed, January 24, by Dr. L. C. Sheffield on "Value of Antitoxin and Treatment of Scarlet Fever." The secretary, Dr. Charles A. Neafie, gave a report at this meeting of the conference of county secretaries which was held at the headquarters of the American Medical Association, Chicago, January 16-17.

Health at Grand Rapids. — Telegraphic reports to the U. S. Department of Commerce from sixty-five cities with a total population of about 30 million, for the week ending January 19, indicate that the lowest mortality rate (8.6) was for Grand Rapids, and that the mortality rate for the group of cities as a whole was 18.9. The mortality rate for Grand Rapids for the corresponding week last year was 9.2, and for the group of cities, 13.4. The highest mortality rate among these cities for this week (37.4) was for Birmingham. The highest infant mortality rate for the week (242) was for Bridgeport, Conn., and the lowest in this group of cities was for Tacoma, Wash., which reported no infant deaths. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The facts that some cities are hospital centers for large areas outside the city limits and that they have a large negro population may tend to increase the death rate.

MISSISSIPPI

Society News.—During the recent epidemic at Laurel, a city of about 14,000, at least five physicians were ill with influenza.——Dr. W. R. May has taken charge of the Lincoln County health unit with headquarters at Brookhaven.——At the annual meeting of the East Mississippi Medical Society (Newton, Neshoba, Winston and Lauderdale counties), Meridian, Dec. 18, 1928, Drs. John T. O'Ferrall, New Orleans, spoke on "Surgery of the Infected Joint"; Samuel R. Benedict, Birmingham, Ala., "Fractures of the Neck of the Femur"; Allan Eustis, New Orleans, "Myocardial Insufficiency"; James S. Speed, Memphis, "Acute Osteomyelitis," and James S. McLester, Birmingham, "Constipation."——The Northeast Mississippi Thirteen Counties Medical Society was addressed at Starkville, Dec. 18, by Dr. Daniel E. Staton, Columbus, on "Herpes Zoster Ophthalmica Associated with Acute Parotitis," and by Dr. Monterville Q. Ewing, Amory, on "Perineal and Cervical Repairs."——Dr. Charles S. Holbrook, New Orleans, addressed the South Mississippi Medical Society, Laurel, Dec. 13, 1928, on "Newer Methods of Treating Syphilis of the Nervous System"; Dr. Charles G. Wright, Hattiesburg, "Artificial Feeding of Well Babies," and Dr. Roland W. Hall, Jackson, "Eczema."——The Homochitto Valley Medical Society held its quarterly meeting at Natchez, January 10; Dr. Marcus Beekman spoke on "Ainhum," and Dr. Jacob S. Ullman, "Fracture of the Atlas."——Dr. Bron D. Blackwelder has taken charge of the Adams County health unit with headquarters at Natchez.——At a joint meeting at Jackson, January 15, of the Central Medical Society and the Issaquena-Sharkey-Warren Counties Medical Society, Dr. Augustus Street discussed "Cancer of the Stomach"; Dr. Edley H. Jones, "Paranasal Sinusitis in Children," and Dr. Sydney W. Johnston, "Infections of the Hand."——Dr. William H. Cleveland, Jackson, has become health officer of Lamar County, succeeding Dr. Charles H. Love, who recently was appointed health officer of the new full-time unit in Monroe County.

MISSOURI

Dr. Cavaness Resigns.—Dr. Ernest W. Cavaness resigned, effective February 7, as health director of Kansas City after three years' service, and Dr. Porter E. Williams has been appointed to that position. Dr. Williams has been superintendent of the General Hospital at Kansas City for several years.

Gift to Medical Society by Dentist.—George A. Bronson, a retired dentist of St. Louis, has given to the St. Louis Medical Society $1,000 to be used for the employment of a full-time executive secretary. Dr. Bronson, although not a member of the society, will make an additional contribution provided the public subscribes enough to pay the indebtedness of the society's new building on Lindell Boulevard. In his letter, Dr. Bronson recalled "numerous courtesies graciously accorded me and my profession at the hands of the medical profession over many years."

Bills Introduced.—House bill 113 repeals an act approved April 30, 1925, entitled "Workmen's compensation, employment, health, safety, statistics and insurance." House bill 102 provides that the cost of boarding private patients at any state hospital shall not be in excess of 10 per cent above the cost of boarding county patients therein. House bill 112 amends the optometry act by providing that the state board of optometry examiners may refuse to issue or revoke a license to practice for (1) canvassing or peddling or soliciting business in a public place; (2) habitual drunkenness or drug addiction.

Society News.—The Jackson County Medical Society has appointed a cardiac committee, comprising Drs. George H. Hoxie, Joseph E. Welker and Roy F. Mills, to cooperate with the Health Conservation Association of Kansas City in a survey of facilities for the prevention of heart disease and the handling of cardiac patients; the society was addressed, January 29, by Drs. Robert M. Schauffler on "Rheumatic Arthritis," and Frank C. Neff on "Diagnostic Relation of Roentgen Observations to Physical Signs in Influenzal Pneumonia of Children."——The Missouri State Medical Association, through its executive committee, has offered to finance a full-time secretary for the St. Louis Medical Society for one year, provided the latter will carry on the work for at least two years more. The state association will recommend the adoption of this plan by each of the larger unit societies to the house of delegates at the annual meeting in Springfield in May. The St. Louis Medical Society presented a symposium on pneumonia, January 29, the speakers being Drs. Llewellyn Sale, William T. Coughlin, Ralph A. Kinsella and Byron F. Francis. The annual report of the library committee of the society shows that the registered attendance at the library during 1928 was 1,541, an increase of 261 over 1927. The library now has 25,768 volumes, of which 576 were added last year.——The Trudeau Club will meet at the St. Louis Medical Society, 3839 Lindell Boulevard, February 7, to be addressed by Dr. Peter Heinbecker on "Mechanism of the Pulmonary Circulation," and by Dr. Byron F. Francis on "Effect of Vagus Stimulation on the Bronchi."

NEBRASKA

Society News. — Dr. Frederick J. Langdon, Omaha, has been elected president of the Omaha-Douglas County Medical Society for the ensuing year. The society was addressed, December 11, by Dr. Frederick W. Niehaus on "The Schilling Leukocyte Count; Its Value in Clinical Medicine."——The Omaha-Douglas County Medical Society was addressed, January 22, by Dr. Frederick A. Willius, Mayo Clinic, Rochester, Minn., on "Digitalis in Clinical Medicine."

Bills Introduced.—House bill 44 provides that a member of the board of examiners in nursing shall not be disqualified because he is an official or member of the instructional staff of any school in which any profession is taught. House bill 50 provides that no employee may recover compensation if injured by reason of intentional wilful negligence or intoxication, unless the employer is also grossly negligent or not observing health or safety regulations. House bill 15 requires the management of every public camp or picnic ground to maintain sanitary appliances thereon.

NEW HAMPSHIRE

Bills Introduced.—House bill 198 permits the county commissioners of any county and three or more taxpayers to incorporate, establishing a general hospital and training school for nurses to be maintained at the expense of the county. House bill 173 provides for the construction of a dormitory for the disturbed male patients at the state hospital. House bill 176 provides that there shall be three members on the board of chiropractic examiners. House bill 177 requires all licensed chiropractors to pay a license fee of $5 the first of each May.

NEW MEXICO

Bill Introduced.—Senate bill 2 creates the office of inspector for the state board of pharmacy, at a yearly salary of $2,400, to inspect all pharmacists and stores selling drugs or poison.

Personal.—After six years as chief of the division of county health work of the New Mexico State Bureau of Health, Dr. Dudley B. Williams resigned, January 1, on account of lack of funds to meet his salary and traveling expenses. Assistance had been given by the Rockefeller Foundation, but the

grant expired and local funds were not available.——Dr. Francis W. Forge retired as full-time health officer of Chaves County, February 1, because of lack of funds to continue the work.

NEW YORK

Bills Introduced.—Senate bill 77 amends the mental hygiene law by providing that real property may be acquired by entry and appropriation by the commissioner, when such property is necessary for sewage disposal purposes. Senate bill 90 amends the mental hygiene law by defining a "resident" as a person who shall have lived in this state at least one year continuously, exclusive of the time spent in public or private institutions. Senate bill 121 amends the education law in relation to school hygiene districts by providing that funds may be appropriated for assistants to the director of school hygiene and that such an assistant be appointed by a district committee. House bill 154 corresponds to senate bill 77. Senate bill 182 amends the workmen's compensation law by including, as compensable occupational diseases, injuries from radium, radium emanations or roentgen rays in hospitals or laboratories. House bill 52 amends the workmen's compensation law by designating all disabling diseases and disabling illnesses as compensable occupational diseases. House bill 145 would add insanity as a ground for divorce. House bill 174 amends the mental hygiene law by defining "resident" as one living within the state one year continuously. House bill 236 provides that a marriage license may not be issued unless both parties produce a certificate from the local board of health or state department stating that the parties are free from venereal diseases.

New York City

Dr. **Goldwater Resigns.**—Dr. Sigismund S. Goldwater announces his resignation as director of Mount Sinai Hospital, with which institution he will hereafter be associated as consultant to the board of trustees. Dr. Goldwater will in the future give his professional attention exclusively to the planning of hospitals, an occupation which has absorbed the greater part of his time since he resigned as health commissioner of New York in 1915.

Personal.—The Grand Cross of the Order of Carlos Finlay was bestowed on Dr. Frederick H. Albee at the recent meeting of the Pan-American Medical Congress in Havana, Cuba.——Dr. Arthur A. Landsman has been appointed attending proctologist at the Unity Hospital.——Dr. Walter G. Crump, professor of surgery, New York Homeopathic Medical College and Flower Hospital, has given $10,000 to establish a scholarship, the income of which will go to a deserving negro student. During the year 1928, the gifts to the institution totaled $150,000.

Tuberculosis Deaths Increase.—The New York Tuberculosis and Health Association announces that the tuberculosis death rate in New York increased during 1928; this was the first time in ten years that the annual rate had not decreased. There were 5,323 deaths from tuberculosis during the year, making a mortality rate of 88.5 per hundred thousand of population, as compared to 86.1 in 1927. The increase of 183 deaths in 1928 above the number in 1927 is said to have been due to an unusual prevalence of respiratory disease, the increase in congestion of population, the increase in the negro population, the arrival of susceptible groups from Mexico and the West Indies, and the shortage of beds for tuberculous patients.

Society News.—The city commissioner of health announces that a diagnostic consultation service for patients with suspected tuberculosis unable to pay a private consultant has been established at 505 Pearl Street and at 325 East Thirty-Eighth Street. Only patients referred by private physicians will be examined. The personnel has had long experience in pulmonary tuberculosis and the equipment includes laboratory facilities and roentgen-ray machines.——Ventura Morera, professor of biologic chemistry, National University of Buenos Aires, addressed the laboratory department of the New York Post-Graduate Medical School and Hospital, January 25, on biochemical research in Argentina, illustrated with slides.——At the seventeenth annual meeting of the Evelyn Goldsmith Home for Crippled Children at the Hotel Biltmore, January 28, Dr. Shirley W. Wynne, commissioner of health, among others, spoke, on "Constructive Efforts for Prevention of Cripples."——At the tenth annual meeting of the International and Spanish Speaking Association of Physicians, Dentists and Pharmacists, January 31, the speakers were Drs. Frederick Tilney, Joseph Muir and Ramon Lamus, Bogota, Colombia, Clyde H. Schuyler, D.D.S., and J. S. Mayer, Phar.D. Dr. Jacob M. Gershberg was elected president of the association for 1929.——The New York Tuberculosis and Health Association, in its report on silicosis, recommends that efforts be made immediately to improve the conditions under which men work at rock-drilling, blasting and excavating and that compensation be granted by law for disability due to silicosis.

NORTH DAKOTA

Bill Introduced.—House bill 11 makes it a misdemeanor for any one to obtain care at a hospital or sanatorium without paying for the attention.

Society News.—Dr. Bernard S. Nickerson, Mandan, was elected president of the Sixth District Medical Society at the December 5 meeting in Bismarck; the meeting was addressed by Drs. John B. Doyle, Rochester, Minn., on "Pain as a Symptom in Neurologic Cases"; Eric P. Quain, "Infections of the Hand," and George M. Constans, "Cavernous Sinus Thrombosis."

OHIO

Bills Introduced.—House bill 13 requires municipalities or townships to furnish medical, hospital and quarantine services to indigent persons. If the indigent person has a legal settlement in a county other than that where the services are rendered, the home county of the indigent shall be charged by the county rendering the services.——Senate bill 17 provides that indigent patients may be admitted to the Ohio State Sanatorium and that the expense may be charged to their home county.

Personal.—Dr. Harvey A. Finefrock has been elected president of the board of education at Barberton.——Dr. George M. Mason, Summerfield, has been reappointed health officer of Noble County.——Dr. Asher T. Childers has become assistant director of the Cleveland Child Guidance Clinic.——Dr. John H. Holcomb has been elected health commissioner of Hepburn to succeed the late Dr. Chalmer C. McLaughlin.——Dr. Leon B. Santee has retired after more than fifty years of practice in the village of Marlboro.——The Hardin County Board of Health elected Dr. John H. Holcomb, Hepburn, county health officer to succeed the late Dr. Chalmer C. McLaughlin. Dr. Holcomb, who has been a member of the board for about ten years, was succeeded in that position by Dr. Samuel C. Smith of Ada.——Dr. Wilbur G. Carlisle has been reelected health commissioner of Bucyrus.——Dr. Alfred W. Veit, coroner of Auglaize County, has also been elected health commissioner of the city of Wapakoneta.

OKLAHOMA

Bills Introduced.—Senate bill 18 provides a penalty for any parent who wilfully omits to furnish medical attention for a child. House bill 37 imposes a special privilege tax of 10 per cent on the sale or distribution of tobacco and cosmetics. House bill 56 penalizes the sale of adulterated foodstuffs.

Personal.—Governor Johnston has appointed Dr. Berry H. Burnett, Duncan, as an alternate member of the state board of medical examiners, succeeding Dr. Lewis E. Emanuel of Chickasha, resigned, and Dr. Samuel B. Leslie, Okmulgee, to succeed Dr. Daniel W. Miller of Blackwell, resigned.

OREGON

Hospital News.—The veterans' bureau hospital at Portland and the regional office had the following new appointments, January 1: Drs. George E. Pfeiffer, chief of surgical service; Isaac A. Dix, chief of medical service, and William O. Manion, tuberculosis specialist.——An anonymous friend gave the Good Samaritan Hospital of Portland $10,000 for a high voltage roentgen-ray therapy machine which has been installed in the cancer clinic.

Changes in Faculty of Medical School.—The regents of the University of Oregon, according to *Northwest Medicine*, have made the following appointments in the faculty of the medical school:

Dr. Noble W. Jones, clinical professor of medicine.
Dr. T. Homer Coffen, clinical professor of medicine.
Dr. J. C. Elliott King, clinical professor of dermatology.
Dr. Ralph C. Matson, associate clinical professor of medicine.
Dr. Harold C. Bean, assistant clinical professor of medicine.
Dr. James Marr Bisaillon, assistant clinical professor of medicine.
Dr. Isidor C. Brill, assistant clinical professor of medicine.
Dr. Joshua Allen Gilbert, assistant clinical professor of medicine.
Dr. William S. Knox, assistant clinical professor of medicine.
Dr. Ray W. Matson, assistant clinical professor of medicine.
Dr. Arthur S. Rosenfeld, assistant clinical professor of medicine.
Dr. Charles E. Sears, assistant clinical professor of medicine.
Dr. Joseph M. Short, assistant clinical professor of medicine.
Dr. Lyle B. Kingery, assistant clinical professor of dermatology and syphilology.
Dr. Harvey G. Parker, assistant clinical professor of dermatology and syphilology.

Dr. John Guy Strohm, assistant clinical professor of syphilology.
Dr. John Earl Else, clinical professor of surgery.
Dr. Robert C. Coffey, clinical professor of surgery.
Dr. Richard B. Dillehunt, clinical professor of surgery.
Dr. Otis F. Akin, associate clinical professor of surgery.
Dr. Thomas M. Joyce, associate clinical professor of surgery.
Dr. Charles R. McClure, associate clinical professor of surgery.
Dr. Ernst A Sommer, associate clinical professor of surgery.
Dr. Alvin W. Baird, assistant clinical professor of surgery.
Dr. Charles D. Bodine, assistant clinical professor of surgery.
Dr. Louis P. Gambee, assistant clinical professor of surgery.
Dr. Luther H. Hamilton, assistant clinical professor of surgery.
Dr. George N. Pease, assistant clinical professor of surgery.
Dr. Eugene W. Rockey, assistant clinical professor of surgery.
Dr. Paul Rockey, assistant clinical professor of surgery.
Dr. James W. Rosenfeld, associate clinical professor of pediatrics.
Dr. Lendon Howard Smith, associate clinical professor of pediatrics.

Dr. John F. Dickson, who for ten years has been head of the eye, ear and nose department, has been appointed emeritus professor of ophthalmology and the department has been divided into an otolaryngology department in charge of Dr. Ralph A. Fenton and an ophthalmology department in charge of Dr. Frederick A. Kiehle. Other appointments in these departments include Drs. John N. Coghlan, clinical professor of otolaryngology; Frank B. Kistrer, associate clinical professor of otolaryngology, and Joseph L. McCool, associate clinical professor of ophthalmology. Edwin E. Osgood, Ph.D., has been appointed director of clinical laboratories and assistant professor of biochemistry. Dr. Wilmot C. Foster has resigned as assistant professor of anatomy to take up work in the Mayo Foundation, Rochester, Minn.

PENNSYLVANIA

Bills Introduced. — Senate bill 5 authorizes counties to maintain hospitals for the treatment of women with nervous diseases. Senate bill 39 permits courts of record to receive the sworn statements of physicians in charge of institutions as evidence of the mental condition of a patient.

Hospital News. — The Abington Memorial Hospital has completed its additions, making the total hospital investment about $5,000,000 which, it is reported, was subscribed by the residents of Montgomery County. The new additions, costing about $1,500,000, were opened to inspection by the public, January 26.

Society News.—Dr. Anthony F. Myers, Blooming Glen, who has served as secretary of Bucks County Medical Society since 1895, was the oldest secretary present in point of service at the twenty-third annual conference of secretaries in Harrisburg, Dec. 4, 1928.——The Cambria County Medical Society gave a testimonial dinner in honor of Dr. Joseph J. Meyer, January 10, at Johnstown. Dr. Meyer was made president elect following seven years' service as secretary of the society.

Bequest to County Society.—The Luzerne County Medical Society was bequeathed $10,000 in the will of Dr. Lewis H. Taylor, Wilkes-Barre, who died, Nov. 5, 1928, which has been placed in the library endowment fund. Dr. Taylor fostered the library throughout its thirty-five years of existence. According to the *Pennsylvania Medical Journal,* he secured the initial endowment of $15,000 from the late Mr. Hollenback, in 1917. It was Dr. Taylor who anonymously matched all money raised from members in a campaign last year to increase the endowment fund.

SOUTH CAROLINA

Bills Introduced.—Senate bill 65 provides that the tuberculosis hospital authorized by act 538 of the acts of 1927 shall not be located within the city limits of Spartanburg.

SOUTH DAKOTA

Bill Introduced.—House bill 23 requires a license for the sale of cosmetics. House bill 37 provides that when a patient for whom alcoholic liquor is prescribed by physicians is unable to sign the application therefor, the prescription may be delivered to the attending physician, nurse or relative.

TEXAS

Bills Introduced.—House bill 47 provides that no suit for divorce on the grounds of insanity shall be sustained until twelve months after a final adjudication of insanity. House bill 54 provides that any fraternal benefit society authorized to do business in Texas may provide insurance on the lives of children and may operate branches for such children. Membership in local lodges and initiation shall not be required. House bill 145 provides that a physician cannot prescribe more than one-half pint of alcohol or of alcoholic liquor to any person at a time nor issue more than one prescription to the same person within a period of ten days. Senate bill 127 amends the medical practice act by (1) requiring registration of physicians in each county in which they practice; (2) requiring the examination in obstetrics only by the board of medical examiners of applicants to practice obstetrics; (3) declaring the act not to apply to masseurs. Senate bill 223 requires that instruction in physical and health education be made a part of the curriculum in public elementary and secondary schools. House bill 170 requires that all dental hygienists be licensed by a board of dental examiners. House bill 11 would create a board of pharmacy and would restrict medical dispensing to personal emergency administration. Senate bill 105 amends the optometry act by confining optometrists to the fitting of lenses or prisms to correct abnormal vision. Senate bill 223 requires the physical education and health courses to be taught in public schools. House bill 270 establishes a state tuberculosis and epilepsy sanatorium for negroes.

UTAH

Bill Introduced.—Senate bill 2 provides for asexualization on conviction of rape.

Personal.—Dr. Frederick E. Straup has retired as medical director and superintendent of the Salt Lake General Hospital, Salt Lake City, and has been succeeded in that position by Dr. Robert J. Alexander.

Society News.—The Salt Lake County Medical Society was addressed, recently, by Dr. Ralph O. Porter on "Therapeutics and Medicolegal Aspect of Alcohol," and by Dr. Walter G. A. Schulte on "Nonspecific Prostatitis"; Dr. Chauncy M. Benedict, Salt Lake City, has been elected president for the ensuing year.——The Central Utah Medical Society was organized in November as a component society of the state association with Dr. Thomas R. Gledhill, Richfield, as president.

WASHINGTON

Hospital News.—Dr. William H. Walsh, Chicago, is acting as consultant in the planning of the new county hospital in Seattle for which a $2,750,000 bond issue was authorized at the November election.

Society News.—Dr. Lester J. Palmer will address the King County Medical Society, February 4, on "Simple Method of Preparation of Dextrose for Intravenous Administration." Dr. Brien T. King has been elected president of the society for this year.

Bills Introduced.—Senate bill 30 provides that a regular physician or surgeon shall not be examined as a witness in any civil action as to any information acquired in attending a patient. Senate bill 62 prohibits any one except a licensed physician or a dentist or a licensed roentgenologist from using an x-ray machine and provides for the issuance of licenses to roentgenologic technicians.

WEST VIRGINIA

Society News. — Dr. Homer A. Walkup, Mount Hope, addressed the Fayette County Medical Society, January 8, on "Prevention of Heart Disease." At this meeting at Oak Hill, Dr. William R. Laird, Jr., Montgomery, presented a silver cup to the society in memory of Dr. James M. Laird, one of the founders, on which is to be engraved each year the name of the member who reads the best paper.——The Tri-State Medical Society which met at Huntington, January 24, was addressed by Drs. Louis E. Phaneuf, Boston, on "Perineal Lacerations and Their Treatment"; Russell L. Cecil, New York, "Etiology of Chronic Arthritis"; Leo Buerger, New York, "Circulatory Disturbances of the Extremities," and Ralph I. Lloyd, Brooklyn, "Rare and Unusual Eye Cases."——The Ohio County Medical Society, Wheeling, was addressed, January 18, by Dr. Albert Graeme Mitchell, professor of pediatrics, University of Cincinnati College of Medicine, on "Pediatric Indications for Tonsillectomy."

WISCONSIN

Bills Introduced.—Senate joint resolution 19 urges Congress to reenact the Sheppard-Towner Maternity Act. Senate bill 34 abolishes the office of dairy and food commissioner and vests his powers in the commissioner of agriculture.

WYOMING

Bill Introduced.—House bill 13 creates a board of chiropractic examiners to license chiropractors.

GENERAL

Medical Bills in Congress.—The House Committee on Interstate and Foreign Commerce held hearings during the last week on H. R. 14070, a bill providing for the establishment of a child welfare extension service in the Children's Bureau. H. R. 13060, providing recognition for the services rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever, has passed the House, with amendments. The bill provides, among other things, for a monthly pension of $125 for certain persons named in the bill. H. R. 14154, authorizing appropriations for construction at the army medical center, District of Columbia, has passed the House. The bill provides an appropriation of $840,000 for the completion of the Army Medical School. H. R. 16530, introduced by Representative Johnson, South Dakota, authorizes the President to consolidate and coordinate governmental activities affecting war veterans. H. R. 16446, introduced by Representative Wolverton, New Jersey, provides hospitalization and medical treatment of transferred members of the Fleet Naval Reserve and the Fleet Marine Corps Reserve in government hospitals without expense to the reservist. S. 2366, regulating the conferring of degrees in the District of Columbia, has been passed by the House, with amendments. The bill now goes back to the Senate for action on the House amendments. S. 5473, introduced by Senator Ransdell, Louisiana, proposes a pension of $150 a month to the widow of Dr. Joseph Goldberger.

Influenza in Some Cities.—Any doubt as to the reality of the current influenza epidemic is promptly dispelled, the U. S. Public Health Service says, by the examination of the mortality statistics. There had been 26,000 deaths in the United States attributable to the epidemic up to January 5. The mortality rate up to that time had been heaviest in the mountain states Montana, Nevada, Colorado and New Mexico, where the accumulated annual mortality over the eight weeks from Nov. 18, 1928, to January 5 was equivalent to 67.8 deaths per hundred thousand of population during that period. This rate is considerably higher than the rate in other regions, partly because the epidemic in the mountain states came to a peak earlier than elsewhere except on the Pacific Coast. It was too early at the time of the report to estimate what the peak of the mortality in the eastern sections of the country would be. The peak of the incidence in the 1926 epidemic in New England came about ten or twelve weeks after that in California. In a list of cities showing the excess mortality for some weeks of the eight week period, Pittsburgh heads the list, followed by Birmingham, Denver, Des Moines, Atlanta, Cincinnati, Los Angeles, Columbus, Toledo and New Orleans. The Pittsburgh mortality was noteworthy; in four weeks in that city, almost one person per thousand had succumbed to the epidemic. The cumulated excess annual rate was about the same in Los Angeles, but here the toll was taken over a period of twelve weeks. It is curious that in some other California cities the mortality rate was relatively light.

Cod Liver Oil and Other Drugs Detained.—The chief of the eastern district of the food, drug and insecticide administration of the U. S. Department of Agriculture, Mr. W. R. Wharton, reports that 2,402,100 gallons of cod liver oil was examined for importation for the year ending July 31, 1928, and of this 960,840 gallons was detained. The percentage of crude drugs which were detained appears to have increased in each of the last two years. This does not necessarily mean that the crude drugs offered for entry have been of poorer quality, as a large amount of licorice root damaged by seawater accounts largely for the higher percentage of drugs detained. However, Mr. Wharton says that the quality of many drugs offered for entry has not shown marked improvement and forms of adulteration still persist. During the year, 3,200 shipments covering about 300 kinds of drugs and totaling more than 67 million pounds exclusive of cod liver oil were examined by the eastern district. Importers can assist the department of agriculture in correcting conditions which lead to the necessity of detaining shipments by specifying only legal merchandise. Importers should advise foreign shippers also of the methods of handling, drying and cleaning drugs, and the few who buy low grade products "at a price," only to have them denied entry on reaching American ports, should discontinue that practice. Mr. Wharton says that the food, drug and insecticide administration seeks the cooperation of importers to bring about the fundamental correction in the abuses in the import trade in crude drugs. The following examples indicate the reason the drugs were detained: (1) aconite: spurious, moldy, excessive stems; (2) belladonna: low in alkaloid, excessive dirt; (3) cod liver oil: adulterated with other fish oils, high, free fatty acids; (4) ergot: low potency, moldy, mite-infested; (5) sarsaparilla: excessive dirt, wild sarsaparilla substituted; (6) strophanthus: spurious variety substituted; (7) lycopodium: adulterated with starch.

Hearing on Newton Bill.—The bill (H. R. 14070) to perpetuate the principles of the Sheppard-Towner Maternity and Infancy Act, minus the safeguards embodied in that act, introduced by Representative Newton, Minneapolis, was the subject of a hearing before the House Committee on Interstate and Foreign Commerce, Washington, January 24 and 25. The bill proposes to authorize the appropriation of a million dollars a year, to be spent by the chief of the Children's Bureau, through a Child Welfare Extension Service, to be organized under the bill. The service is to promote the welfare and hygiene of mothers and children and aid in the reduction of infant and maternal mortality and is to operate in any state either independently of state agencies or in cooperation with them. No state is entitled to anything whatever under the bill. In case of cooperative activities, however, if the chief of the Children's Bureau deems it advisable to cooperate, the expense of the joint services is to be defrayed from federal funds and such cooperative funds as may be voluntarily contributed by state, federal and municipal agencies, or child welfare or other local associations or individuals. The U. S. Board of Maternity and Infant Hygiene consisting of three members, of which the surgeon general of the public health service is one, is to be abolished, and in its place is created an advisory committee on maternal and child welfare, including the surgeon general of the public health service. The chief of the Children's Bureau and five persons appointed by her comprise two thirds of the committee. The committee has no authority, its function being advisory only. The Sheppard-Towner act provides that appointments under it shall be made in accordance with civil service rules, but the Newton bill contains no such restriction.

Among the speakers in support of the Newton bill, introduced by Mrs. Maud Wood Park, Portland, Me., formerly president of the National League of Women Voters, were:

Dr. Samuel J. Crumbine, New York, of the American Child Health Association, of which President-Elect Herbert Hoover is president.
Dr. Arthur T. McCormack, Kentucky, state health officer.
Dr. Ennion G. Williams, Richmond, Va., state health commissioner, representing the Conference of State and Provincial Health Authorities.
Miss Hazel Corbin, general director, Maternity Center Association, New York City.
Miss Mary E. Murphy, director, Elizabeth McCormick Memorial Fund, Chicago.
Mrs. E. E. Danley, National Board, Young Women's Christian Association.
Mrs. Leonard Schloss, National Council of Jewish Women.
Mrs. Florence Kelley, National Consumers League.
Miss Elizabeth Noyes, American Nurses' Association.
Miss Selma Borchardt, American Federation of Teachers.
Edward McGrady, American Federation of Labor.

The opposition to the bill was represented by:

Dr. William C. Woodward, Bureau of Legal Medicine and Legislation, American Medical Association.
Dr. W. D. Chapman, Silvis, Ill., representing the Illinois State Medical Society.
Dr. George W. Kosmak, New York City.
Dr. Augustus Thorndike, Boston.
Mr. Alexander Lincoln, Boston.
Mrs. H. H. Amsden, Concord, N. H., representing Women's Auxilary of the New Hampshire State Medical Association.

In support of this bill it was urged that, notwithstanding the distressing condition among mothers and children pictured by its proponents, the states would not appropriate money for their relief, to replace the doles received under the Sheppard-Towner act and that the bill would be amended so as to give state health agencies a voice in intrastate cooperative health activities, and thus provide a supposedly adequate medical control, notwithstanding the fact that the entire work is under the direction of a lay bureau. Against the bill, it was urged that it undertook to vest in a federal bureau chief authority to engage unlawfully in activities within the several states. It was urged further that an attempt to segregate the welfare and hygiene of mothers and children from the welfare and hygiene of the rest of the community would lead to duplication of effort or to conflict, and to extravagance and inefficiency. In rebutting the claims of the supporters of the bill, it was pointed out that, notwithstanding the expenditure of more than two million dollars a year under the Sheppard-Towner act since 1921, maternal mortality remains practically where it was when the act was passed and that infant mortality since that time has been falling much more slowly than before. The committee took the bill under advisement.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 5, 1929.

Majority of One for Abolition of Capital Punishment

In the house of commons Lieutenant Colonel Kenworthy asked leave to introduce a bill for abolition of capital punishment and substitute for the death penalty penal servitude for life. Subject to the existing powers of remission, the sentence was to be fixed with the qualification that, if a jury recommended a prisoner to mercy, the court of criminal appeal might substitute any less severe sentence. He had the support of members belonging to all the three parties. The proposal was not novel or revolutionary. The countries that had abolished capital punishment and the dates were as follows: Austria, 1918; Belgium, 1863; Finland, 1826; Denmark, 1892; Holland, 1870; Italy, 1889 (the reintroduction in recent years of the death penalty was only for political crime); Norway, 1905; Portugal, 1867; Roumania, 1864; Sweden, 1921; Argentina, 1922; Brazil, 1891; Colombia, 1910. Queensland abolished capital punishment in 1922; it had been abolished in a number of German states and in eight of the United States. While it was not claimed that the statistics showed that the murder ratio per thousand of the population had decreased in countries where the death penalty had been abolished, it had not increased. There was always the chance that a mistake might be made in a murder trial, as was shown by the recent case of Oscar Slater. Undoubtedly innocent men had been hanged, and there was always the chance that other evidence would come to light that would ultimately prove a condemned man innocent. It was better that a hundred guilty men should escape the gallows to suffer penal servitude than that one innocent man should be judicially murdered. Were the honorable members who opposed the bill in favor of hanging women? (A member: "Why not?") Because sentiment, chivalry and human instinct were against it. (Cheers.) If it was repugnant to execute a woman, it was equally repugnant to execute a man. Whenever a penalty had been relaxed, whenever, for example, it was proposed to abolish the death penalty for such offenses as sheep stealing and forgery, there had always been arguments put forward that property would not be safe and that there would be no law and order. Would the opponents of the bill be prepared willingly, if they were called on to do so as a duty, to carry out the penalty of hanging? (Some laughter.) Nine hundred and ninety-nine persons out of a thousand would shrink with horror from it, and they should not ask a fellow citizen to perform a duty from which they themselves would recoil. Mr. Radford moved the rejection of the motion. He said the reason for the retention of the death penalty was that it would be a deterrent to men who might commit murder. If capital punishment were no deterrent, why were such efforts made in murder cases to have the death penalty commuted? So long as there were men and women who were not able to protect themselves, so long as they had little boys and girls going unprotected on errands, and so long as there were vile crimes committed on defenseless people, there should not be any weakening of the code of criminal law. Leave to bring in the bill was granted by 119 votes to 118, a majority of one.

The Stone Age in South Africa

Discoveries made on Sheppard Island, in the Vaal River ten miles from Bloemhof, afford the first conclusive proof of the order in which the various kinds of stone implements were made in South Africa and show that the makers and users of certain very old types of implements were contemporary with long extinct animals. The remains of a mammoth found in gravels with implements were first reported on by Professor Dart, and similar remains have been identified by Dr. Haughton and Dr. Broon and by Professor Osborn, an American. It has now been found that all these animal remains can be associated with the definite assemblage of primitive human tools, and the order in which the stone age in South Africa progressed has been fairly clearly laid down. But this was arrived at mainly from knowledge of and comparison with the order in which similar remains were found in Europe. There has not before been any discovery in which stratification of several cultures was present, that is, where several clearly marked layers of soil had been found, with each stratum yielding a different class implement. This has now been established at Sheppard Island, and the information obtained is welcomed as of the greatest scientific value, especially as the record of the strata existing there bears out the conclusions arrived at as to the age of the different cultures.

The Prevention of Noise: Deputation to Ministers of Health

The minister of health received a joint deputation from the British Medical Association and the People's League of Health which drew attention to the need for the control and diminution of preventable noise, and the grave effect that noise might have on the mental and physical health of the community. The psychiatrist Sir Robert Armstrong-Jones said that he could speak with some knowledge and authority on behalf of the mentally ill, who also frequently suffered from serious functional nervous disturbances. To the neurotic person, who did the work of the world, sleep was indispensable. Indeed, it was an absolutely vital necessity; but under present conditions it was often impossible of attainment. As to the kind of noises that disturbed sleep and distressed the mind, they were mostly of the avoidable kind. They comprised sudden unexpected shocks of surprise, or the "unusual" and unsurmized and unanticipated, such as motor hooters, the uncontrolled exhaust, the pneumatic drill, the vibrations of fast driven vehicles with solid tires, railway whistles, milk cans, noisy trains, and all kinds of strident horns. Sir Maurice Craig, another psychiatrist, said that for many years he had been impressed with the increasing number of persons whose health had suffered from the noises in the streets of London. He saw patients whose sleep had been broken by such noises from which they could not find any means of escape. As sound sleep was a fundamental necessity for mental health, it was evident how important became the question of disturbing noises. When exposed to these, the auditory centers in the brain could never be at rest and nerve fatigue resulted with all its concomitant disabling symptoms. Disturbed nights were injurious enough, but persons were also exposed by day to much noise which was in origin thoughtless and unnecessary. The minister said in reply that he had listened with great interest to the views the deputation had expressed, and he would have their representations carefully studied. He would communicate with the home secretary and the minister of transport, who were already examining the question of noise prevention.

Old Light on Vitamins

M. Francois Latry, chef of the Savoy Restaurant, in a letter to the *Times,* points out that it was known to French chefs 150 years ago that the liver oils of certain fish and the liver fats of sheep, calves and certain poultry possessed great virtues—the exact nature of which was not known—and it would be difficult to find a menu not at least moderately rich in such oils and fats, and consequently in all the important vitamin A as known today. He states that the French cuisine has been built up on scientific as well as on appetizing and artistic principles, and it has become

an unconscious part of the French chef's training and art to consider food values as well as food flavors. This has been in process of development for the last 200 years, or longer.

PARIS

(From Our Regular Correspondent)

Nov. 28, 1928.

The Harmlessness of Stabilized Colloidal Lead

Professor Lorenzini, of the biochemical institute of the University of Milan, recently presented an interesting communication on stabilized colloidal lead before the Société de biologie. Lorenzini sought to render practical and less dangerous the method of Blair Bell of Liverpool for the treatment of cancer with intravenous injections of colloidal lead. According to Lorenzini, the solution employed by Blair Bell is not sufficiently stabilized. Lorenzini, together with his collaborator Ganassini of the University of Pavia, alleges that he has brought about a complete stabilization by adding traces of sodium thiosulphate to the pseudocolloidal solution of metallic lead prepared electrically. The selection of sodium thiosulphate was determined by two considerations: its reductive and antiflocculent action, which prevents the transformation of colloidal lead into toxic ionized lead, and the detoxifying effect that it exerts in poisonings by the heavy metals. By this means, one obtains a colloidal solution of lead of a deep slate color, perfectly stable and with granules averaging 3 microns in thickness. It contains 0.5 per cent of lead (the same proportion as in the Blair Bell solution), and preserves its qualities for a month. This solution has been employed in intravenous injections, and is well tolerated, by the rabbit, in doses of 0.025 Gm. per kilogram of body weight. This amount is relatively about thirty times greater than that which Blair Bell employs in man. The number of red corpuscles did not vary, the weight remained the same, and the urine presented neither albumin nor hemoglobin. For purposes of control, other rabbits were given the same dose in the form of lead hydrate. They immediately presented very grave symptoms. A third group of rabbits was given lead hydrate and sodium thiosulphate; there was no hematuria or albuminuria, but loss of weight and marked decrease in the number of red corpuscles were noted. At the conclusion of these researches, clinical trials which confirmed the laboratory results were made by Cessa Bianchi in Milan, Donati in Turin, Lombardo in Pisa, and Possati in Bologna. The intravenous injection of 10 cc. of colloidal solution containing 0.05 Gm. of lead, when repeated for several days for several weeks, did not cause symptoms of saturnism, albuminuria or anemia; but, on the contrary, one observed the phenomenon, apparently paradoxical, of an increase in the number of red corpuscles and the percentage of hemoglobin, together with an increase of the pulse. Several cases of neoplasm are at present under treatment by this method with remarkable results. At present, it appears that it does not present any danger and that it may be employed by all investigators.

Epidemic of Typhoid in Suburbs of Lyons

For several weeks past, an epidemic of typhoid, such as has not been known for a long time, has held sway in the suburbs of Lyons. From seventy-four to 130 cases have been reported from each of five larger villages which, with those from the smaller villages, make a total of 980 cases. The city of Lyons has reported 153 cases. There have been seven deaths in the hospitals. What gives this epidemic a peculiar character is the fact that the cause has been frankly determined. It will probably give rise to a test case to decide the question of responsibility, which case will doubtless have important consequences for the control and regulation of health matters in general. The presence of typhoid bacteria in the water supplied by the Compagnie concessionnaire des eaux de Lyon has been established. This water comes from filtering reservoirs located in the country. The water of these reservoirs became contaminated through contact with a neighboring cesspool. An inquiry having established these facts, the sufferers from the epidemic have joined forces and forty-one damage suits have been brought against the water company and against the owner of the cesspool. The prefect of the department came to Paris to confer with the minister of the interior in regard to the situation, and the ministry of public health is showing great interest in the matter. It is the first time that the question of responsibility and of pecuniary reparations has been raised for alleged culpable negligence in connection with damage to the public health. It appears probable that the courts will recognize this responsibility and that the result will be far reaching in the matter of interpretation of the law, as such a decision would furnish the basis for the filing of an almost infinite number of claims for damages. It is possible that the final outcome will be that certain modifications in the laws affecting the matter will be carried through.

Antidiphtheritic Vaccination Recommended by the Minister of Hygiene

There appears to be a recrudescence of diphtheria in France, both as to frequency and as to gravity, since last year. Especially, the grave types with association of the streptococcus with the diphtheria bacillus are occurring more and more frequently. The need of organizing a more vigorous prophylaxis against this disease has appeared to M. Loucheur, minister of hygiene, and that is much easier to effect now that the anatoxin recently discovered by Dr. Ramon of the Pasteur Institute no longer causes the untoward reactions observed occasionally with the Roux and with the Behring serums. The minister has therefore sent a circular letter, with detailed information, to the prefects of all the departments of France asking them to organize, and make general, antidiphtheritic vaccination in a systematic manner but not to make it compulsory, which would require the enactment of special legislation, after consultation with the Academy of Medicine. The circular letter emphasizes that vaccination with anatoxin is both effective and harmless. From 1923 to 1928, more than 30,000 vaccinations were carried out in France, more than 20,000 in Belgium, and more than 400,000 in Canada, without a single grave incident. These vaccinations were carried out in subjects of different ages, and from 97 to 100 per cent of the persons vaccinated acquired immunity in from three weeks to two months.

Rabies and Viper Venom

Madame Phisalix, who for many years has devoted herself to the study of venoms of animal origin in her laboratory in the Museum of Natural History, has reached a curious conclusion, which she presented recently in a communication to the Academy of Sciences and which brings out a peculiar similarity between the venom of the viper or asp and the virus of rabies. By combining the venom with the virus and by employing fractioned and repeated doses (with the virus in excess) she was able to vaccinate dogs against the two simultaneously. She concludes from this that it will thus be easy to vaccinate hunting dogs simultaneously against rabies and against snakebite, which would aid in diminishing the number of cases of rabies transmitted to man.

Tuberculosis Seals

The special stamp or seal that is sold in France for the collection of funds in aid of the crusade against tuberculosis is a dainty vignette representing a young girl who, with arms extended toward the light, calls from the room in which she is confined: *vivre!* (please, let me live). The funds collected in each department are devoted to the work of that department, except for a small percentage that goes to the executive committee that organizes the publicity campaign. The immediate purpose of the collection of funds is to create in the vicinity of

every hospital, or in the environs of every urban community having a hospital administration, a tuberculosis pavilion to which all persons with contagious tuberculosis can be admitted and receive suitable treatment until such time as they can be transferred (if that is indicated) to a tuberculosis sanatorium, in order that they may immediately cease to be a menace to their entourage, and, more particularly, to their children and their families as a whole. The remainder of the funds collected will be used to aid existing societies; the placement of young infants in rural homes (the Grancher home finding society for infants); the preventoriums for infants; the open-air schools; the vacation colonies, and in the wider generalization of antituberculosis vaccination. The seals are sold every year in December.

The Need of a Leprosarium in Morocco

The commission chosen to study the prophylaxis and the treatment of colonial diseases, which met some time ago at the Collège de France under the chairmanship of Professors Nattan-Larrier and Tanon, addressed an urgent request to M. Steeg, resident superior of Morocco, to carry out the recommendation contained in the resolution formulated by the congress at the session, last spring, in Rabat. The congress advised the creation of a leprosarium at Mogador by reason of the numerous cases of leprosy scattered throughout Morocco. M. Steeg replied that he was not convinced of the need of a leprosarium. He based his decision in part on the opinion of the Conseil supérieur d'hygiène of Morocco. The council appears to be desirous of maintaining a certain degree of independence with reference to the central sanitary bodies of the capital. It declared that, in view of the heavy expenditure of money that would be required, it seemed advisable to reserve available funds for protection against diseases that are much more widespread and more threatening than leprosy: typhus, the plague, smallpox, syphilis and tuberculosis. These diseases claim more victims among the Europeans than leprosy. The cases of leprosy are rare and sporadic, and affect exclusively the native population. The resident superior holds, therefore, that it will be sufficient, for the present, to detect the lepers in the dispensaries, and to collect them, with their families, in certain restricted areas, where they will form small agricultural colonies, which will be subject to the supervision of physicians, and which the patients may not leave without medical authorization. These open-air leprosariums will have the advantage of entailing the expenditure of less money, but it is probable that their surveillance will be difficult and that the protection of the rest of the population will be somewhat illusory.

RIO DE JANEIRO

(From Our Regular Correspondent)

Nov. 15, 1928.

Polyneuritis After the Use of Emetine and Bismuth

Professor Garfield de Almeida reported three cases from his individual practice before the Academy of Medicine in which polyneuritis had occurred after the use of a bismuth preparation. He summarized his observations in each case: The first case was in a man, aged about 50, who suffered a subacute attack of amebic dysentery. After thirty injections of emetine hydrochloride, a total of 168 Gm., had been administered over a period of forty-five days, Professor de Almeida was called in consultation, and then was asked to take the responsibility of caring for the patient. At the time, the patient had an aortitis with slight cylindric vascular dilatation, and during the next month a marked physical depression appeared and became more and more intensified. Examination revealed polyneuritis of a sensorimotor type which predominated in the lower extremities and was characterized by incomplete paralysis of the muscles of the legs, especially of the extensor and the peroneal muscles. Flaccid paralysis was noticeable in the arm, forearm and hand. There were disturbances of sensibility, indicated by cramps, formication, pains, slight paresthesia in the distal portion of the extremities, and muscular atrophy, which was most marked in the gastrocnemius muscles. All reflexes were diminished and there was absence of the patellar and achilles reflexes. A pneumogastric attack then appeared, accompanied by cardiac disturbances which were manifested by arrhythmia and tachycardia with the heart rate varying between 130 and 140. There was exacerbation of the other symptoms. Emetine was discontinued. Yatren (iodo-oxybenzene pyridine sulphonata) was resorted to and the patient soon recovered from the dysentery. Strychnine in progressive doses (from 1 to 10 mg.) cured the polyneuritis.

The second case was similar, though less remarkable: A boy, aged 14, with amebic dysentery, developed neuritic symptoms after having taken 0.7 Gm. of emetine hydrochloride. The etiologic diagnosis was made, emetine was discontinued, and strychnine was administered. There was complete recovery after thirty days.

The third case was more interesting. Quadriplegic polyneuritis of the sensorimotor type appeared a few days after the injection of a bismuth salt and was accompanied by all the characteristic symptoms in less than eight days.

Professor de Almeida discussed a series of observations on the etiologic element of these types of neuritis and advised against exceeding a dose of 1 Gm. of emetine hydrochloride. He also advised caution in the use of bismuth salts, stating that such accidents may likewise occur with them if they are used too intensively.

The number of cases of polyneuritis that have been reported as being due to emetine are few, if the number of patients who have been treated by it is taken into consideration. The speaker was unable to find any reference to cases of bismuth polyneuritis. Among the papers consulted was that of R. Bernard of Brussels, in which the accidents produced by bismuth medication are fully described in a detailed study of all drugs that are used in the modern treatment of syphilis.

Perforations of the Septum

Dr. J. Souza Mendes recently spoke on perforations of the septum before the Society of Medicine and Surgery. He considered them as being congenital and acquired, the latter being caused by trauma, and by diseases such as tuberculosis, leprosy, leishmaniasis and syphilis. The perforations are usually not noticed by the patients unless they are manifested by epistaxis, the formation of crusts, and pruritus, or by hissing sounds in the course of respiration. The latter manifestation may be very annoying.

The treatment depends on the loss of substance, the extent of the destructive process, and whether or not it is in evolution or has healed. If it has not healed, general treatment is resorted to; antiseptic ointment is applied locally and the edges of the perforation are curetted and cauterized. If the destructive process is already cured, the opening in the septum must be obliterated, since it annoys the patient by the hissing sounds, the crusts or the pruritus. The perforation is closed by autoplasty. The mucosa of the septum is used either as a flap (Jankauer, Halle) or as a bridge (Seiffert). In the same way the mucosa of the inferior turbinal bone (Seiffert) or that of the floor of the nose may be used. Another autoplastic method is to use a quadrangular piece of cartilage, intercalating it between the two mucosae of the septum. The activated sides of the mucosa, supported by the cartilage, then develop and gradually enclose the gap, leaving a whitish scar. This form of autoplasty was advocated by Diepold in 1915. Dr. Mendes has resorted to it with excellent results. He recommends it to his colleagues and emphasizes the simplicity of its technic as compared with the methods of Jankauer, Halle and Seiffert.

Vulvar Myiasis

Dr. Clovis Corres da Costa reported a case of vulvar myiasis to the Society of Medicine and Surgery. He summarized it as follows: A colored woman, aged 17, single, came to his office stating that two months before she had given birth to a male fetus of nine months' gestation. She had suffered a second degree laceration of the perineum which was sutured with partial success. After the usual period she was discharged as being in good condition. Twenty-eight days after delivery, however, and five days before the consultation, she noticed a small nodule in the upper portion of the right labium. It itched and was painful. She stated that, at the onset, she did not notice any opening in the skin at that spot. About two days later the itching sensation increased and she noticed small larvae in the vulvar introitus. She called a physician who, on examination, found a circular perforation of the skin 5 or 6 mm. in diameter in the right labium. It seemed to have been made by excavation, and was surrounded by an infiltrated area which was the size of a millet seed. When the labia were opened, larvae were seen which immediately moved back into the vagina. They returned to the vulvar surface as soon as the lobia were closed. Dr. da Costa removed twelve larvae from the fundus of the vagina. The nodule was opened under local anesthesia and one other larva caught. Examination of the perineal wound and of the vaginal walls and the cervix did not reveal any other opening through which the larvae could penetrate to the deep tissues.

The patient felt relieved after treatment, and when she returned for examination two days later the nodule was painless and was smaller. She had noticed an itching sensation in the vagina, however, and on this occasion another larva was discovered. A third examination did not reveal any other larvae and the patient was discharged as cured.

JAPAN

(From Our Regular Correspondent)

Dec. 30, 1928.

The Enthronement and the Medical World

PROMOTION OF VISCOUNT GOTO TO COUNT

Viscount Goto has served his country well in politics as well as in medicine since his service in the military hospital in Osaka in 1877. Thus he was promoted to the rank of count on the occasion of the emperor's enthronement, which was held last November. At the same time a degree was conferred on him by the University of Hamburg, Germany. The German envoy to the ceremony informed him of it at a farewell dinner given to him by his friends here.

HONORS TO MEDICAL MEN

Dr. Tysler, chief of the St. Luke's International Hospital in Tokyo, was among the foreigners, prominent in science or social service, who were honored on this occasion. Besides his meritorious deeds to the public he was instrumental in effecting the recent restoration of the hospital.

Dr. K. Miyairi, formerly a professor at the Kyushu Imperial University and discoverer of Miyairi shell-fish (intermediate host of the miracidium of *Schistosoma japonica),* Dr. E. Kanasugi, a professor of the Jikei Medical College and member of the upper house, and four other men of prominence in medical science had honors of high rank conferred on them. A gold cup was given to eight medical members of the upper house and eleven members of the lower house; among them are Count Dr. Goto, Viscount Dr. Saneyoshi, Baron Dr. Kitasato, Baron Dr. Takagi, and Drs. S. Miyake, T. Sato, S. Sato and E. Kanasugi.

With others who have been prominent in public service, Mr. S. Matsuda, officer of the Salvation Army, and Mr. T. Hayashi of the Japan White Cross Society were also officially commended; the former for his service in the Salvation Sanatorium in a suburb of Tokyo, and the latter for his service in the Japan White Cross Sanatorium in Tokyo.

POSTHUMOUS HONORS

Posthumous court ranks were conferred by the emperor on the following men, famous in Japanese medicine: San-ei Kozeki, Dogyu Isarago, Yahachi Toki, Sampu Takahashi, Chukan Horiuchi and Junzo Miwa.

Isarago, who was born near Kyoto in 1671 and died in 1734, learned surgery from a Dutch practitioner in Nagasaki. Among his followers was Seishu Hanaoka, a pioneer in surgery.

Toki was born in 1795 and died of cholera in 1825. He also learned medicine from a Dutch physician and is thought to have been the first Japanese to contribute medical articles to a European magazine. The article "Beantwortung einiger Fragen über die japanische Geburtshülfe" may be found in the *Frankfurt Obstetrics* published in 1826.

In 1849, Takahashi went to Nagasaki, the only open port at that time, to study vaccination, which had just been introduced into this country. He was punished with fifty days' confinement for going to Nagasaki without the permit of his master "daimyo," but he succeeded in introducing vaccination into his province.

Horiuchi also studied medicine in Nagasaki and introduced vaccination and the European practice of pediatrics into his native province in the northeastern part of Japan. He attempted to prevent the criminal operations that were performed there at that time.

SPECIAL SANITARY BUREAU IN KYOTO

During the celebration in Kyoto the enforcement of health measures were successfully carried out in the city by a sanitary bureau established especially for the occasion. It was opened, November 1, and Mr. Yamada, chief of the bureau, and Dr. S. Uchino, senior sanitary officer, were stationed there with a corps of health officers.

IN HONOR OF THE AGED

All people more than 80 years old were awarded the imperial cup by the Imperial Household at the time of the ceremony. The number entitled to it amounted to 140,000 in Tokyo alone.

MEMORIAL ENTERPRISES OF THE ENTHRONEMENT

One of the memorial enterprises for the enthronement ceremony planned by the Osaka authorities is to establish twelve infant consultation centers in the poor quarters of the city, by which they intend to lower the death rate of infants. It is now above 30 per cent. Another enterprise planned by the Osaka Association of Midwives is the construction of a museum of labor. The materials to be exhibited in it are the things connected with obstetrics and midwifery, and specimens and books.

Memorial works to be undertaken by the prefectural medical associations are as follows: the building of an association hall by Kumamoto and three other prefectures; organization of antituberculosis work by Yamaguchi Prefecture, and investigation into the distribution of carcinoma in this prefecture by the Nara Medical Association; organization of a hygienic association, construction of an association hall, and establishment of a sick nurse institute by Wakayama Prefecture; and establishment of forest schools and a hygienic association by the Tokyo Office of Hygiene.

MEDICAL EXAMINATION IN TOKYO

Nineteen thousand people were invited to the imperial prefectural dinner, November 16. In taking precaution against infectious diseases previous to it, 4,790,858 persons were examined. Fifty-one cases of infectious disease were found, as follows: twenty-two of dysentery, twenty-seven of typhus, one of diphtheria, and one of scarlet fever.

Personal

Dr. K. Doi, emeritus professor of the Tokyo Imperial University, who had been sick since last September, has recovered after an operation by Dr. Shiota, and has gone to his villa at Kamakura for the benefit of his health.

Drs. Kato and Jin of the Tohoku Imperial University left Kobe for Cairo, Egypt, November 8, to attend the hundredth anniversary of the Cairo University. They will go on to Europe after the celebration, and return to Japan in June.

Dr. G. Kato in the Keio Medical College is planning to attend the twelfth International Hygiene Conference, which is to be held in Boston in August.

Dr. Miyajima, chief of the Kitasato Institute, will leave for Geneva in January. He will be the Japanese delegate to the conference for the amendment of the international opium treaty.

Deaths

Dr. K. Saito, chief of the Aoyama Asylum for the Insane, died, November 17, at the age of 68.

Dr. T. Uno, chief of the Rakuzando Hospital in Tokyo and emeritus professor in the Tokyo Imperial University, died, November 20, at the age of 79.

Dr. N. Hirota, founder of the department of pediatrics, and emeritus professor in the Tokyo Imperial University, died, November 27, at the age of 70.

Dr. E. Ikeda, a naval surgeon and chief of the Ikeda Hospital in Tokyo, died, December 2, at the age of 64.

The death of Naval Surgeon General Tadao Honda, at the age of 71, was reported, December 13. After his graduation from the Tokyo Imperial University, he secured a position in a hospital, and entered the navy later. He obtained his medical doctorate by making a special study on cancer. In 1906 he was appointed dean of the naval medical college, and was promoted to the rank of surgeon general. Since his retirement from this post, he had been making further researches on cancer. He was president of the Cancer Society.

ITALY

(From Our Regular Correspondent)

Nov. 30, 1928.

The Congress of Orthopedics

The nineteenth congress of the Società italiana di ortopedia was held in Rome at the Policlinico di Roma. Professor Cornisso of Trieste presided, and in his introductory address he urged the conventionists to take initial action toward the organization of courses in differential gymnastics for those school children who cannot, for reasons of health, take part in the normal courses in gymnastics.

THE ETIOLOGY OF SCOLIOSIS

The official paper on the first main topic, "The Etiology of Scoliosis," was presented by Professor Lavermicocca of Turin. The speaker distinguished "absolute" from "relative" scoliosis. Absolute scoliosis signifies essential deformation of the vertebral column, and relative scoliosis the variation that the spinal column itself may present in relation to the static and dynamic functions of the whole organism. To measure these conditions of the spinal column, he makes use of special apparatus invented by himself. From the etiologic point of view, scoliosis may be distinguished as congenital, static, dynamic and pathologic. The widespread use of radiology has shown that the congenital forms, which were regarded as rare up to twenty years ago, are in fact frequent. Static scoliosis is due to a disequilibrium of the pelvis resulting from its own defects, or to a disproportionate load applied asymmetrically to the trunk (porters, waiters). As for the much debated question of scoliosis in school children, according to the more recent clinical and statistical studies, that is to be regarded as lacking practical foundation. To the group of dynamic scoliosis belong those due to a tonic and functional disequilibrium of the muscular elements. They are, in general, the results of diseases of the muscles and the nervous system. Among the chief causes of pathologic scoliosis are to be reckoned infantile and late rickets, and the alterations of the endocrine glands; many constitutional diseases also may produce vertebral insufficiency. In regard to the mechanism of the production of various deformities, various theories have been advanced. According to Professor Lavermicocca, one must not attempt to deny the immutable physical laws that regulate the statics and the mechanics of the spinal column but must study in each subject the particular changes in the skeleton, conforming to the nature of these the treatment of the deformity.

Galeazzi presented a communication with reference to certain types of neurogenic scolioses of dynamic origin that he had studied and treated, with favorable results, by means of gradual forced reduction under anesthesia.

Bargellini discussed his comprehensive statistics on scolioses involving the lumbar portion of the spinal column. The congenital lumbosacral anomalies were demonstrated by roentgenograms.

De Gaetano illustrated five cases of Paget's bone disease that he had studied for a number of years.

Numerous further communications were presented, and a general discussion followed, in which many conventionists took part. The topic selected for the next congress is "The Relations Between Deformity and Endocrine Dysfunctioning."

Convention on Malaria

In February, 1929, a convention of students and technicians will be held to discuss problems pertaining to the epidemiology, the prophylaxis and the treatment of malaria. The convention is under the auspices of the Società italiana per gli studi sulla malaria. The convention will be attended by physicians, hygienists, engineers, agriculturists and economists. Many subjects will be discussed, among which are the interconnection between epidemic years, the evaluation of the incidence of malaria, habitations in relation to malaria, drainage of wet land, and new antimalaria remedies.

Honors to Professor Lustig

On the occasion of the tenth anniversary of the armistice, as celebrated in the Casa madre dei mutilati in Rome, special honors were shown to Prof. Alessandro Lustig, senator, who for eight years has been president of the Opera nazionale per la protezione degli invalidi di guerra. Professor Lustig was elected an honorary member of the Associazione dei mutilati.

Prizes for Large Families of Children

The podesta of Florence has established five prizes of 100,000 liras each for the husband and wife who shall have four children born in Florence during a period of six years.

Chair on Tuberculosis at the University of Rome

A chair on the clinical aspects of tuberculosis and respiratory diseases has been established at the University of Rome. The newly appointed occupant of the chair is Prof. Eugenio Morelli, the pupil and successor of Forlanini. In his introductory address, he explained to the assembly the purpose of the new course. It proposes to give to the nation physicians who are adequately prepared to attack the problem of tuberculosis.

Death of Professor Giacosa

The death of Prof. Piero Giacosa, the occupant of the chair of pharmacology at the University of Turin, has been announced. Professor Giacosa was born in 1853 and was graduated from the University of Turin in 1876, at which time he presented a thesis on respiration in high mountain regions. After studying several years abroad, he became an assistant of Angelo Mosso, and later instructor in biologic chemistry. In 1896,

he was appointed to the chair of materia medica. Of his numerous publications, the most important are "Un trattato di botanica medica" and "Un trattato di materia medica e farmacologica sperimentale." He was an honorary professor at the University of Cambridge, where he delivered a course of lectures on the history of medicine.

International Conference of the Red Cross

At the thirteenth International Conference of the Red Cross, recently held at Aja, the creation of the Unione internazionale di soccorso, which has for its object the mutual aid of the adherent countries in the event of grave disaster, from humanitarian and philanthropic motives, was approved at the suggestion of Senator Cremonesi, president of the Italian Red Cross Society. General Baduel, director of the Italian Red Cross Society, discussed sanitary aviation. Professor Di Nola Capo, of the sanitary service of the ministry of areonautics, spoke on the same subject. Colonel Balestro, of the army medical corps, considered the need of standardization with respect to the sanitary equipment of various countries in peace and in war.

BERLIN

(From Our Regular Correspondent)

Dec. 22, 1928.

Relative Value of Raw and Cooked Eggs

The question of the relative value of raw and cooked eggs has again come to the fore. The discussion centers about the much discussed importance of raw food for nutrition and health in general. Professor Friedberger investigated the effect of cooking on food given to white rats, first in connection with a mixed diet. He established that cooking diminished the nutritional value and that the food became more impaired the longer the cooking process was continued. Animals fed raw food grew better than those with cooked food, and, of the latter, those animals grew better that had received food cooked a short time than those that were fed food that had been cooked a long time. The researches, however, that were undertaken by other investigators yielded widely different results: no difference in the nutritional value of the three types of food could be established. The experiments were carried out chiefly with raw and boiled eggs. In the *Deutsche medizinische Wochenschrift*, the Swedish biologist Stenqvist reports now the results of his experiments with rats to which, as their sole food, either raw or hard boiled eggs were fed. His series of experiments establishes clearly that a diet of raw eggs is greatly inferior. The animals that were fed only raw eggs showed signs of being backward in growth after the lapse of only twenty days, while those that received boiled eggs developed much more vigorously and required less food than the former. The rats that received exclusively raw food showed likewise various disorders of growth. Stenqvist, therefore, concludes that "cooking lowers by no means the nutritional value of hen's eggs but rather prevents the slight but distinct poisonous effects of raw eggs."

Injuries from Electrical Shock

For the past twenty-five years, Prof. Dr. Jellinek of Vienna has made a special study of accidents caused by contact with high voltage electric currents. Before the Medizinische Gesellschaft of Berlin, he gave, with the aid of many instructive photographs, a survey of the manifold and problematic injuries that may arise irrespective of whether the contact is with a direct or alternating current or with a high or low tension current. Before electricity was employed industrially, only electrical "burns" and the markings on the skin caused by lightning were known. Jellinek distinguishes ten different types of injuries. There are the so-called current markings, which often are merely discolorations of the skin. The genuine "current markings" are, as photomicrographs show, not genuine burns but only the effects of electromechanical changes. There are, however, mixed types, which, in addition to these current markings, show genuine burns. Other changes are edema and necrosis due to occlusion of the blood vessels. According to Jellinek, the main effect of the electric current is of a mechanical nature, while the chemical and thermic effects are secondary. The traces of electricity are seen as straight, circular and spiral changes. Even symmetrical figures may be produced. The effects are the same, whether an organic or an inorganic substance is involved.

A characteristic of electrical injuries is that they are not associated with pain or with any reaction of the adjacent tissues. They result finally in the loss of the injured member or, in contrast with genuine burns, they heal readily. An aseptic necrosis is the most frequent consequence of electrical injuries, which leads to uneventful healing and leaves a smooth scar formation without shrinking of the skin. Jellinek found, in several instances, such a necrosis of the cranium under the completely intact scalp. He treats the most severe injuries of the extremities conservatively, because at the outset it is uncertain how serious they are. In only two cases has he advised amputation, and then only because the patient's life was threatened owing to a lack of adsorption of the injured areas. The onset of fibrillation, which develops when the current has passed through the heart, is of importance. He carried out experiments of this phase of the subject, with rabbits, dogs and apes. Whereas fibrillation, followed by stoppage of the heart, was produced in the dog, in the ape the heart soon resumed its normal beat. Thus one may conclude that, under such conditions in man, prolonged artificial breathing will resuscitate the patient.

In supplementation of Professor Jellinek's account, Professor Schridde of Dortmund gave a report of his observations in sixty necropsies on persons suffering fatal electrical injuries. He expressed the conviction that a temperature of 2,500 degrees is produced by the resistance of the skin and that the "current markings" result from this owing to destruction of the tissues.

The Causative Agent of Yellow Fever

Prof. Dr. Kuczynski recently reported on the discovery of the causative agent of yellow fever before the Verein für innere Medizin. He and his assistant have suffered severe attacks of the disease. The Japanese investigator Noguchi, who died in Africa from yellow fever earlier in the year, thought he had found the causative agent in *Leptospira*. It has been known for a long time that a certain species of mosquito, *Aedes aegypti*, transmits the heretofore unknown causative agent to man by its bite. Stimulated by the observation of the investigator Stokes that a species of monkey constitutes an excellent experimental animal, new endeavors were made to discover the causative agent of yellow fever. The anatomic changes that are produced in the monkey by the disease are the same as in man and are attended with a severe involvement of the liver. The disease can be transmitted not only by the bite of the mosquito but also by blood infusion and by transplantation of portions of organs.

Kuczynski observed in connection with his culture experiments that the cultures have the same odor that is noted in the vicinity of patients suffering from the disease. He established further that the causative agent is a bacterium, but he is unable as yet to describe its characteristics systematically. That the bacterium has pathogenic action was shown by the fact that both he and his assistant contracted the disease in the laboratory. Prof. Dr. Jungmann of the first Medizinische Klinik of the Charité Hospital has published a report of the course of their attacks. Kuczynski was able to demonstrate also that his cultures possess an immunizing effect, as he prepared serums from them by injecting them into animals. It is hoped that further researches planned by him in the Tropenhygienisches Institut in Hamburg will confirm his previous observations.

Marriages

JOHN BOLLING VAIDEN, JR., Highland Springs, Va., to Miss Lottie May Osborne of Elk, Dec. 1, 1928.

BENJAMIN HERMAN BAILEY, Richmond, Va., to Miss Frances Rives Adcock of Orlando, Fla., Dec. 28, 1928.

WILLIAM L. HUGHES, Jackson, Miss., to Miss Zella Hume Harris of Charlottesville, Va., Dec. 8, 1928.

HARRY WALKER, Courtland, Va., to Miss Pamelia Gary of Richmond, at New York, Dec. 8, 1928.

CHARLES LEE BAKER, Augusta, Ga., to Miss Blanche Coghill of Bowling Green, Dec. 27, 1928.

EDWARD WHERRY GRAY, Richmond, Va., to Miss Eva Lee Corron of Front Royal, Dec. 15, 1928.

FRANK R. HANLON, Rochester, Minn., to Miss Katherine C. Conahan, at Hazleton, January 7.

SIMON BALL to Miss Ann Snyderman, both of Philadelphia, Dec. 20, 1928.

Deaths

George Wythe Cook ⊕ Washington, D. C.; University of Maryland School of Medicine, Baltimore, 1869; in 1908 and 1909, from 1912 to 1917 inclusive, and in 1919 member of the House of Delegates of the American Medical Association; past president of the Medical Society of the District of Columbia, the Washington Obstetrical and Gynecological Society, and the state board of medical examiners; formerly professor of physiology, National University Medical Department and professor of clinical medicine, Department of Medicine, George Washington University; veteran of the Civil and Spanish-American wars; served as treasurer of the committee on arrangements for the first Pan-American Congress in 1893; on the staffs of the Episcopal Eye, Ear and Throat, Garfield Memorial, St. Elizabeth, and Central Dispensary and Emergency hospitals, the Washington Home for Incurables and the Louise Home; aged 82; died, Dec. 26, 1928, of cerebral arteriosclerosis.

Louis Theodore de Medicis Sajous, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1909; member of the Medical Society of the State of Pennsylvania; associate professor of experimental pharmacology, Temple University School of Medicine and assistant professor of applied endocrinology, Graduate School of Medicine of the University of Pennsylvania; aged 42; died, January 16.

William Horace Davis, Washington, D. C.; Harvard University Medical School, Boston, 1897; for many years in charge of vital statistics in the U. S. Census Bureau; in 1920, vice chairman of the International Conference for the Revision of the List of Causes of Death held in Paris; aged 57; died, January 8, of heart disease.

George Fleming McInnes ⊕ Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1908; member of the Radiological Society of North America; aged 47; on the staff of the Baker Sanatorium, where he died, January 12, as the result of injuries received in an automobile accident.

Frederick Shillito ⊕ Kalamazoo, Mich.; Kentucky School of Medicine, Louisville, 1882; Rush Medical College, Chicago, 1890; past president of the Kalamazoo Academy of Medicine; on the staffs of the Borgess Hospital and the Bronson Methodist Hospital; aged 71; died, January 7, of angina pectoris.

George Marshall Mayers ⊕ Lieutenant, U. S. Navy, retired, Washington, D. C.; University of Virginia Department of Medicine, Charlottesville, 1899; was made a passed assistant surgeon in 1905 and was retired in 1909; aged 51; died suddenly, Dec. 2, 1928, of heart disease.

Jabez Edward Giles, Northampton, Mass.; Medical Department of the University of the City of New York, 1884; formerly on the staff of the Manhattan Eye, Ear and Throat Hospital, New York; aged 75; died, Dec. 23, 1928, of hemiplegia, arteriosclerosis and bronchopneumonia.

George Newell Hall, Binghamton, N. Y.; Syracuse University College of Medicine, 1883; member of the Medical Society of the State of New York; for many years city police surgeon; aged 67; died, January 3, following a cerebral hemorrhage suffered several months ago.

Joseph Leo Behan ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1913; assistant professor of ophthalmology at his alma mater; on the staff of the Mary Immaculate Hospital, Jamaica; aged 37; died, January 4, at St. Peter's Hospital, of lobar pneumonia and diabetes.

Charles S. Cleland, Sinclairville, N. Y.; Baltimore University School of Medicine, 1887; member of the Medical Society of the State of New York; health officer of the village of Sinclairville and the town of Charlotte; aged 66; died, Dec. 17, 1928, of acute myocarditis.

Oscar D. Shay, East Liverpool, Ohio; Homeopathic Hospital College, Cleveland, 1886; member of the Ohio State Medical Association; formerly on the staff of the East Liverpool City Hospital; aged 66; died, January 10, of cerebral hemorrhage.

William Pleasant Wood, Washington, D. C.; George Washington University Medical School, Washington, 1909; member of the Medical Society of the District of Columbia; aged 41; died, January 10, at the Providence Hospital, of pneumonia.

Morey Potts Jeffery, Vermilion, Ohio; Western Reserve University School of Medicine, Cleveland, 1920; member of the Ohio State Medical Association; aged 37; was killed, January 3, when the automobile in which he was driving was struck by a train.

James Madison Barnes, Waldron, Mich.; Toledo (Ohio) Medical College, 1894; member of the Michigan State Medical Society; aged 63; died, January 6, at the Thorn Memorial Hospital, Hudson, of injuries received in an automobile accident.

John George Schweinsberg, Baltimore; University of Maryland School of Medicine, Baltimore, 1909; formerly health officer of the Baltimore City Health Department; aged 40; died, January 10, of chronic nephritis and heart disease.

Chalmer C. McLaughlin, Dunkirk, Ohio; Starling Medical College, Columbus, 1881; member of the Ohio State Medical Association; county health officer; aged 70; died, January 10, at the McKitrick Hospital, Kenton, of lobar pneumonia.

Edward Patera ⊕ Chicago; Medical Department of the University of Illinois, Chicago, 1903; on the staff of St. Mary of Nazareth Hospital; aged 53; died suddenly, January 21, of spontaneous rupture of the aorta and arteriosclerosis.

Lyndsay Wolford Newland, Splashdam, Va.; Lincoln (Neb.) Medical College, 1911; member of the Medical Society of Virginia; served during the World War; aged 41; died, Dec. 24, 1928, at a hospital in Dante, of pneumonia.

William N. Ferguson, Sr. ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1879; aged 73; died, January 9, at the Methodist Episcopal Hospital, of hypertrophy of the prostate and cellulitis of the face.

George H. Shelton, Detroit; University of Michigan Medical School, Ann Arbor, 1872; formerly coroner of Alpena, Mich.; aged 81; died, Dec. 27, 1928, at the Grace Hospital, of bronchopneumonia following influenza.

Michael Thomas Sullivan, Glace Bay, N. S., Canada; McGill University Faculty of Medicine, Montreal, 1901; on the staffs of the Glace Bay General and St. Joseph's hospitals; aged 54; died, Nov. 18, 1928.

Walton Bruce Smith, Toledo, Ohio; University of Vermont College of Medicine, Burlington, 1926; on the staff of the Women's and Children's Hospital; aged 26; died, January 8, of lobar pneumonia.

Thomas Davis Christian, Jr. ⊕ Greensboro, N. C.; Harvard University Medical School, Boston, 1923; aged 32; died, January 12, at the Wesley Long Hospital, of chronic valvular heart disease and influenza.

James W. McNeill, Fayetteville, N. C.; Bellevue Hospital Medical College, New York, 1876; member of the Medical Society of the State of North Carolina; aged 79; died, January 7, of angina pectoris.

Cecil Orville Witter, Cleveland; Western Reserve University School of Medicine, Cleveland, 1908; member of the Ohio State Medical Association; aged 55; died, Oct. 28, 1928, of cerebral hemorrhage.

E. J. Neathery ⊕ Sherman, Texas; University of Louisville (Ky.) School of Medicine, 1891; medical director of the Wilson N. Jones Hospital; aged 61; died suddenly, Dec. 25, 1928, of angina pectoris.

Jacob H. Sieling, New Freedom, Pa.; College of Physicians and Surgeons, Baltimore, 1886; member of the Medical Society of the State of Pennsylvania; aged 77; died, January 5, of cerebral hemorrhage.

Henry S. Jewett, Dayton, Ohio; University of Michigan Medical School, Ann Arbor, 1870; member of the Ohio State Medical Association; aged 82; died, January 7, as the result of cerebral hemorrhage.

Philip Edgar Martin, Imlay City, Mich.; Detroit College of Medicine and Surgery, 1891; member of the Michigan State Medical Society; aged 58; was instantly killed, January 8, in an automobile accident.

Alexander H. Williams, Childress, Texas; Dallas Medical College, 1902; member of the State Medical Association of Texas; aged 72; died, in November, 1928, of cerebral hemorrhage.

Thomas Gary Green, Shelbyville, Ind.; Kentucky School of Medicine, Louisville, 1889; aged 63; was found dead, January 11, of an overdose of chloroform, presumably self-administered.

Charles Clarence Hill, Athens, Ohio; Physio-Medical Institute, Cincinnati, 1884; member of the Ohio State Medical Association; aged 72; died, Dec. 21, 1928, of cerebral hemorrhage.

Frank Woodward Metcalf ⊕ Fulda, Minn.; Rush Medical College, Chicago, 1906; past president of the Southwestern Jackson Medical Society; aged 53; died, January 7, of pneumonia.

James Henry Mosher, Prophetstown, Ill.; Long Island College Hospital, Brooklyn, 1867; for twenty-one years president of the school board; aged 88; died, January 6, of pneumonia.

Frederick B. Harding ⊕ Allentown, Pa.; Medico-Chirurgical College of Philadelphia, 1908; aged 46; on the staff of the Allentown Hospital, where he died, January 8, of influenza.

Albert S. Denton, Robards, Ky.; Kentucky School of Medicine, Louisville, 1891; formerly member of the state legislature; aged 61; died, Dec. 31, 1928, of pneumonia, following influenza.

Julius Marcellus Underwood ⊕ Lafayette, Ga.; Atlanta Medical College, 1883; aged 70; died, January 2, at the home of his daughter in Chattanooga, Tenn., of pneumonia following influenza.

Homer Burnett Corlett, Cleveland; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1909; aged 43; died, in December, 1928, of heart disease.

John H. Gordon ⊕ Pocahontas, Ill.; Missouri Medical College, St. Louis, 1875; past president of the Bond County Medical Society; aged 86; died, January 13, of angina pectoris.

Meyer Rosenheimer, Milwaukee; Bellevue Hospital Medical College, New York, 1884; owner of the Lincoln Hospital; aged 65; died, Dec. 23, 1928, of acute dilatation of the heart.

Robert H. Bailey, Gainesville, Texas; Eclectic Medical Institute, Cincinnati, 1889; member of the State Medical Association of Texas; aged 66; died, Dec. 17, 1928, of pneumonia.

Ralph W. E. Alcott ⊕ West Hartford, Conn.; United States Medical College, New York, 1881; health officer of West Hartford; aged 79; died, Dec. 6, 1928, of angina pectoris.

Frank H. Huron, Danville, Ind.; Hahnemann Medical College and Hospital, Chicago, 1883; Civil War veteran; aged 88; died, Dec. 31, 1928, as the result of cerebral hemorrhage.

James Piper Cope, Denver; Cincinnati College of Medicine and Surgery, 1871; Bellevue Hospital Medical College, New York, 1872; aged 80; died, in January, of influenza.

John Van Hee, Detroit; Cleveland Medical College, 1896; member of the Michigan State Medical Society; aged 62; died, January 1, of lobar pneumonia and chronic myocarditis.

Levi A. Walker, Burlington, N. C.; University College of Medicine, Richmond, 1898; health officer of Burlington; aged 55; died, Dec. 27, 1928, of acute cardiac decompensation.

John Stewart Harrison, Washington, D. C.; Jefferson Medical College of Philadelphia, 1877; aged 72; died, January 7, at the Providence Hospital, of bronchopneumonia.

Harvey A. Foster, Monmouth, Ill.; Kansas City (Mo.) Medical College, 1881; member of the Illinois State Medical Society; aged 76; died, January 5, in a local hospital.

William Warren Bussey, Augusta, Ga.; University of Georgia Medical Department, Augusta, 1866; Civil War veteran; aged 89; died, Dec. 16, 1928, of pneumonia.

Ernest Franklin Brewer, Denver; Medical Department of the University of Illinois, Chicago, 1906; aged 48; was killed, Dec. 19, 1928, at Romeo, in an automobile accident.

William A. French, Athens, Texas; Medical Department University of Louisiana, New Orleans, 1882; aged 72; died, in January, of pneumonia, following influenza.

Charles Howard, Kansas City, Mo.; Medico-Chirurgical College of Kansas City, 1903; aged 76; died, Dec. 15, 1928, of bronchopneumonia and acute myocarditis.

Charles Edgar Reed ⊕ Culver, Ind.; Jefferson Medical College of Philadelphia, 1895; aged 59; died, January 2, at Battle Creek, Mich., of cardiac infarct.

James Middleton Boyette, Southport, N. C.; College of Physicians and Surgeons, Baltimore, 1885; aged 71; died, Nov. 6, 1928, of diabetes mellitus.

Abner H. Shaffer, Huntington, Ind.; Cleveland Medical College, 1862; Confederate veteran; aged 99; died, January 8, of pneumonia, following influenza.

William Lynch, Greenville, Ohio; Fort Wayne (Ind.) College of Medicine, 1889; Civil War veteran; aged 85; died, January 3, of bronchopneumonia.

Metellus Rowan Barclay, Chicago; University of Maryland School of Medicine, Baltimore, 1889; aged 61; died, Nov. 28, 1928, of chronic myocarditis.

Robert Sachs, Baltimore; Baltimore University School of Medicine, 1891; veteran of the Franco-Prussian War; aged 77; died, January 15, of pneumonia.

David Hiram Judd, Brookline, Mass.; University of Bishop College Faculty of Medicine, Montreal, Que., Canada, 1890; aged 61; died, Dec. 26, 1928.

Henry R. Casey, Austin, Ind.; Indiana Medical College, Indianapolis, 1876; aged 82; died, January 4, of chronic myocarditis following influenza.

Frank Chappell, Granite Falls, Wash.; University of Michigan Medical School, Ann Arbor, 1881; aged 81; died, Oct. 2, 1928, of hemiplegia.

James H. Frazer, Elkton, Md.; University of Pennsylvania School of Medicine, Philadelphia, 1866; aged 86; died, January 8, of pneumonia.

Charles W. Zeller ⊕ Defiance, Ohio; Cincinnati College of Medicine and Surgery, 1899; aged 56; died, Dec. 24, 1928, of myelogenous leukemia.

Dwight M. Turner, Springfield, Mo.; Homeopathic Hospital College, Cleveland, 1877; aged 79; died, Dec. 23, 1928, of cerebral hemorrhage.

Hugh Ross, Clifford, Ont., Canada; Trinity Medical College, Toronto, 1872; aged 82; died, Nov. 3, 1928, at the home of his son in Boston.

James Harvey Thornbury ⊕ Crites, W. Va.; Eclectic Medical Institute, Cincinnati, 1891; aged 74; died, Dec. 12, 1928, of pneumonia.

Alexander W. Macdonald ⊕ Baltimore; College of Physicians and Surgeons, Baltimore, 1896; aged 63; died, January 15, of pneumonia.

Jesse J. Fly, West Frankfort, Ill.; Nashville (Tenn.) Medical College, 1878; Civil War veteran; aged 82; died, Dec. 24, 1928.

John Thomas Larew ⊕ St. Louis; Bellevue Hospital Medical College, New York, 1875; aged 77; died, January 6, of heart disease.

John Wallace Lyle, Houston, Pa.; Jefferson Medical College of Philadelphia, 1882; aged 79; died, Dec. 12, 1928, of heart disease.

John S. Kistler, Shenandoah, Pa.; Hahnemann Medical College of Philadelphia, 1879; aged 71; died, January 11, of heart disease.

Thomas Price Pipkin, Dallas, Texas; Louisville (Ky.) Medical College, 1886; aged 66; died, Dec. 27, 1928, of bronchopneumonia.

James William Shea, Boston; Tufts College Medical School, Boston, 1925; aged 28; died, Dec. 23, 1928, of heart disease.

Edwin Kirkpatrick, Elgin, Ill.; College of Physicians and Surgeons, Baltimore, 1886; aged 75; died, January 5, of heart disease.

Charles A. Ullerick, Chicago; Rush Medical College, Chicago, 1893; aged 70; died, January 19, of cerebral hemorrhage.

James W. Rutherford, Oklahoma City; Medical College of Ohio, Cincinnati, 1873; aged 80; died, January 4, of influenza.

Jonas S. Coverdale, Decatur, Ind.; Medical College of Fort Wayne, 1881; aged 79; died, Dec. 31, 1928, of uremia.

Barzillai A. Arbogast, Lay, Colo.; Denver College of Medicine, 1883; aged 81; died, January 6, of influenza.

Bureau of Investigation

JAMES R. KELLY—QUACK
Another Medical Mail-Order Fraud Debarred from the Mails

James R. Kelly of Denver, Colorado, has been operating some mail-order quackery under such imposing trade names as "Great Western Drug Company," "Western Drug Company" and "W. D. Company." His business has been that of selling an alleged cure for sexual impotence and another alleged cure for "rheumatism." He started the business about December, 1926, and his advertising literature was prepared by the Hower Advertising Agency of Denver, which was willing to share in

Be a MAN!
Seek the VIGOR, the PEP, the STRENGTH and RECUPERATIVE POWERS of your young manhood—by taking
HERCULES TABLETS
Instant action helps revive the natural physical powers of more youthful days. Men with pep, energy and dynamic vitality are admired and sought after everywhere. Hercules Vitality Tablets stimulate circulation, enrich the blood and induce other wonderful effects. Write for them at once. They are the best made so why pay more. Pkg. $1.00; 3 pkg., $2.50. (Note saving on three packages.) Money back guarantee. Address WESTERN DRUG CO., P. O. BOX 1492, Dept. C. DENVER, COLO.

the profits of the fraud and placed the advertising in a number of papers and periodicals. Such are some of the facts that appear in a memorandum recently issued by the Solicitor of the Post Office Department to the Postmaster General, recommending the issuance of a fraud order against the three trade names used by Kelly.

Kelly's nostrum for sexual impotence was known as "Hercules Tablets," sometimes called "Hercules Vitality Tablets," with a sideline, "New-Vim (Hi-Pep) Gland Capsules," the latter sold "for persons unusually depressed." Kelly's advertising matter on this product was of the usual aphrodisiac type. "Be a Healthy, Robust Man," "Be an Attractive Woman," were some of Kelly's slogans.

When the "Hercules Vitality Tablets" were examined in the Bureau of Chemistry, they were found to contain iron carbonate, calcium carbonate, dandelion and strychnine, while the "New-Vim (Hi-Pep) Gland Capsules" were found to contain a mixture of gland substances with considerable thyroid. Kelly admitted to the postal authorities that the capsules contained thyroid, pituitary, suprarenal, orchitic substances and yohimbine.

Kelly called his nostrum for rheumatism "Golden West Rheumatic Treatment." This was recommended as a panacea for all rheumatic ailments. It consisted of certain capsules and tablets. The capsules were, for all practical purposes, 5 grains of aspirin, with minute amounts of other drugs; the tablets were purgative, containing, among other things, croton oil and jalap.

The claims made by Kelly for both of his nostrums were gone into carefully by the postal authorities and found to be without justification. The government officials also reported that Kelly turned over to the Hudson Letter Company (a concern that makes a business of buying and selling "sucker lists") the names of his customers, and Kelly was able to make about $300 a year from this source alone. During the year 1927 Kelly's receipts from the business were $5,200. He had no regular employees but was assisted at times by a woman.

His nostrums were prepared by the Cole Chemical Company of St. Louis, Missouri. The rather imposingly named Great Western Drug Company consisted of two rooms, each about 15 feet by 25 feet in size, and equipped merely for a mail-order business. Kelly, who was about 32 years of age, had no medical training but was a printer on the Denver *Post* before starting in his mail-order quackery.

On January 15, 1929, Postmaster General Harry S. New issued a fraud order, closing the mails to the Great Western Drug Company, the Western Drug Company and W. D. Company.

THE SNEK-WUN-ON FRAUD
The Mails Closed to Another Penile Splint

On November 28, 1928, the Snek-Wun-On Company and A. Rogainat, sales manager at Chicago, Illinois, were called on to show cause by December 18 why a fraud order should not be issued against them. At the time set William J. Dow of Washington, D. C., requested, on behalf of the concern, that a continuance be given. The time was extended until December 22, 1928. On that date J. G. Deynzer, proprietor of the business, and Mr. Dow appeared before the postal authorities and filed samples of the literature, together with a copy of the contract under which Deynzer purchased the right to sell the device known as the "Snek-Wun-On."

According to the Memorandum of the Solicitor of the Post Office to the Postmaster General, the Snek-Wun-On device consists of a piece of rubber shaped somewhat like the male sexual organ, the rubber being reinforced by means of a piece of metal running through its length, which, in turn, is fastened to a rubber ring or collar to be slipped over the male sexual organ, the whole forming a kind of support for the organ. Further, according to the Memorandum, the device is used as an "auxiliary" to the male sexual organ in accomplishing the sexual act and in bringing about certain other results during sexual intercourse.

The device and literature used by the concern were examined by a medical expert of Washington, D. C., who submitted to the federal authorities a comprehensive report. From this the Solicitor concluded that the device would not, and could not, accomplish the results claimed for it. Mr. Dow was asked whether he had any medical testimony to support the claims made for the device and he admitted that he had no such evidence. As a result, the Solicitor recommended that a fraud order be issued against the Snek-Wun-On Company and A. Rogainat, sales manager, but, for some reason not obvious from the Memorandum, did not extend that recommendation to the man who was the proprietor of the business—J. G. Deynzer. A fraud order was issued, December 29, 1928.

Correspondence

"THE TREATMENT OF CATARACT"

To the Editor:—The reviewer of my book on the Treatment of Cataract (The Journal, Sept. 15, 1928, p. 824) objects to the book being "foisted" on the world outside India on account of its heterodoxy. Such a view does not take into account that the heterodoxy of today is the orthodoxy of tomorrow, and his doctrine would be a bar to all progress—indeed, a reversion to medieval mentality. His views on opinions expressed in the book are entitled to the weight of his personal experience as compared with mine. With reference to his remarks on the section dealing with Barraquer's operation, that section was published in the *British Journal of Ophthalmology* long before the book was published. A reprint of this paper was sent at the time to Barraquer, but he did not accept the challenge. Surely he was a more interested party and a better qualified one to defend his own interests than the reviewer.

The reviewer says that my book will arouse two types of emotion among its readers:

1. "The inexperienced ophthalmic surgeons will read and believe and, on attempting to practice the maxims, will wallow in vitreous until experience has ripened them." He does not tell the reader that Captain Cruikshank, I. M. S., reported in the *British Journal of Ophthalmology*, among other matters, 144 consecutive cases of cataract in which operation was performed at a certain clinic by J. Russell Smith, without a single hitch—J. Russell Smith being then probably the most junior

operating member of the profession, and a young man with practically no previous experience. These operations were done according to the most recent method described in the book under consideration. It will be noted that the reports of the cases were not published either by the operator or with his knowledge, so that personal equation does not enter in. Will others not be able to do the same, if they take the trouble to understand thoroughly the principles fully detailed and illustrated in the book?

2. "The experienced ophthalmic surgeon will promptly proceed to anger. . . ." I am very sorry that I am unable to be of any assistance to such.

HENRY SMITH, Sidcup, Kent, England.
Lieutenant Colonel, Indian
Medical Service.

LEGISLATION FOR A NATIONAL INSTITUTE OF HEALTH

To the Editor:—May I call attention to Senate bill 4518, enclosed, and House bills 15212 and 15529 of similar nature for the purpose of establishing a National Institute of Health under the administrative control of the Surgeon General of the United States Public Health Service and to authorize acceptance of private donations for the United States Public Health Service.

Through the Hygienic Laboratory, the United States Public Health Service regulates the quality of biologic products, such as antitoxins, serums and vaccines, used in the treatment and prevention of disease. This regulation is accomplished by licensing all such materials sold in interstate commerce. Each manufacturer must have a separate license for every product distributed. The director of the Hygienic Laboratory, who is an officer of the United States Public Health Service, makes recommendations concerning licenses, standards and requirements to a board composed of the Surgeon General of the United States Public Health Service, the Surgeon General of the Army and the Surgeon General of the Navy. This board, in turn, makes recommendations to the Secretary of the Treasury, who signs the orders.

If at any time a manufacturer violates a regulation or distributes material that does not meet all requirements, his license may be suspended or revoked, thus causing him financial loss for violation of the United States Public Health Service regulations.

Since the Secretary of the Treasury is not an expert on biologic matters, he necessarily relies for technical information on the recommendations of the board. And since the task of supervising the processes of manufacture, quality, potency and sterility of the many biologic products now in use is both complicated and highly technical, the board that makes recommendations to the Secretary of the Treasury must look to the director of the Hygienic Laboratory for the detailed technical information on which its decisions are made. Thus, while the licenses and regulations for biologic products are issued by the Secretary of the Treasury, actual control rests with the United States Public Health Service, especially the Surgeon General of the United States Public Health Service and the director of the Hygienic Laboratory.

The proposed bills would make it possible for the commercial manufacturers whose products are controlled in interstate commerce by the United States Public Health Service to make donations of money for the use of the United States Public Health Service.

It is not necessary to suppose any lack of integrity on the part of the officers of the United States Public Health Service to see the error of this arrangement. For example: A given manufacturer might be contributing toward the support of research on an important problem when the director of the Hygienic Laboratory discovered that one or more products distributed by that manufacturer were below standard or even harmful. Might not a sincere doubt arise as to whether withdrawal of financial support from important research should be risked by prompt action to stop the sale of the products in question or whether continuation of the research should be insured by allowing sale of the poor material to continue, thus possibly paying for the research in lives of patients who received the impotent or harmful products?

In addition to gifts from the commercial manufacturers, donations would be received from private foundations. Taking it for granted that these foundations have the best intentions, that their officers are selected for their experience and wisdom and that their interest in medical research, medical education and the United States Public Health Service is based on a conviction that with their money and organization they could be of great service to humanity, it is still doubtful whether a government department should thus be placed in the hands of private organizations, since there is no guarantee that future officers of such foundations will be as gifted and as altruistic as the present officers. One or more organizations controlling large sums of money to be given away for medical research or education would be in a position to dictate the policies of the United States Public Health Service if officers of the United States Public Health Service should be desirous of obtaining donations.

Passage of any of the proposed bills authorizing acceptance of private donations for the United States Public Health Service would amount to turning the United States Public Health Service over to the commercial manufacturers and private foundations.

There is no more reason why the United States Public Health Service should receive private donations than there is for the Interstate Commerce Commission to receive gifts from the railroads and private organizations.

If it is considered advisable to establish a federal health institute, this institute should be financed wholly by the government.

GEORGE F. DICK, M.D., Chicago.

HEMATOGENOUS ORCHITIS

To the Editor:—In a recent article (THE JOURNAL, Dec. 15, 1928, p. 1857) by Dr. Miley B. Wesson is a notation "that a type example of hematogenous orchitis is seen in mumps." The inference drawn would indicate that there is a relationship between orchitis and epidemic parotitis. This would mean that the orchitis not infrequently occurring in mumps is due to a direct blood stream invasion.

As I recently pointed out (*Tr. Sect. Obst., Gynec. & Abd. Surg., A. M. A.*, 1927), the latter condition could only be possible in the presence of a generalized metastasis. There is no anatomic or pathologic explanation for orchitis occurring alone in the presence of epidemic parotitis. A consideration of the anatomy of the parotid gland and Stenson's duct clearly shows that parotitis is due to an ascending infection from the presence of oral bacteria. Unless a generalized pyemia is present the orchitis as seen occasionally must be explained in a similar manner. In the presence of infection the supposition of an ascending infection by way of the urethra, by direct contact or otherwise, is strongly tenable.

LOUIS ANTUPIT, M.D., Hartford, Conn.

The Thymus Gland.—The physiology of the thymus gland is obscure. That it bears some relationship to the genital system we know, in that it increases in size until puberty and then atrophies, in that castration causes persistent growth and retarded activity of the gland, and in that its removal hastens the development of the testicles. It is also believed that the thymus is concerned especially in the synthesis of nucleic acid. —Garland, Joseph: Some Sidelights on the Thymus Vogue, *New England J. Med.*, Jan. 10, 1929.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SEOXYL

To the Editor:—I recently tried sodium nitrite for seasickness after reading some articles in THE JOURNAL concerning it. It caused almost uncontrollable vomiting and I found I was much worse than without it. Ordinarily, seasickness subsides in quiet waters, but not after two doses (5 grains) of sodium nitrite taken three hours apart. Have you any reports on the after-effects of "Seoxyl"? I found it much more effective than sodium nitrite, but it seemed to cause a decided numbness and frequent urination. Please omit name. L. C. M., California.

ANSWER.—"Seoxyl," according to the manufacturers, contains cerium oxalate, 1 gr.; amygdalus persica cortex, gr. 1/50; pituitrin, gr. 1/2; atropine sulphate, gr. 1/300, and cocculus indicus berries, gr. 1/300. Further, according to the manufacturers, the cocculus and amygdalus are present in homeopathic quantities only. Naturally, therefore, their physiologic effect can be ignored. This leaves among the potent ingredients cerium oxalate, pituitrin and atropine sulphate. As pituitrin is without physiologic action when taken by mouth, Seoxyl may be said to be, for all practical purposes, composed of cerium oxalate, 1 grain, and atropine sulphate, 1/300 grain, to the tablet. Both of these drugs have, of course, been used for many years in the treatment of seasickness.

CHLORINATION OF WATER, AND THE INCIDENCE OF GOITER

To the Editor:—Please inform me regarding the displacing of iodine by the chlorinization of water. Also what is the percentage of goiter during adolescence in endemic and in nonendemic regions? I am interested in finding many goiters in this region in which the water is supposed to have a preventive iodine content. We have recently been required to chlorinize the water by state law.

LOUISE M. INGERSOLL, M.D., Asheville, N. C.

ANSWER.—The amount of "available chlorine" for chemical action in the chlorination of water is ordinarily from 0.25 to 1 part per million parts of water. The amount would have no effect on the total iodine content originally present in the water. It is largely reduced from the positive form (Cl^+) to the negative form (Cl^- such as is present in chlorides). A very small amount may still be present in positive form combined with the organic material (such as the chloramine type of combination). In water containing an abundance of such matter as much as 5 parts of "available chlorine" may be necessary and may be used with safety. In Utah, Oregon, Michigan and Ohio, where goiter is endemic, it is found in from 22 to 41 per cent of the boys and in from 40 to 63 per cent of the girls during adolescence. In Alabama, Kentucky, Nebraska and New Mexico, where goiter is not endemic, it is found in a very small number of people. In Illinois and Massachusetts, where goiter is endemic in some districts and not in others, it is found in from 6 to 10 per cent of the boys and in from 12 to 28 per cent of the girls. These figures represent average percentages of the states as a whole. Thus the percentages listed will be found to be much too high for some districts and much too low for others. The figures were taken from an article on the distribution of endemic goiter in the United States (*Pub. Health Rep.* **41**:2691 [Nov. 26] 1926). In this article Asheville is listed as having very little goiter.

RELATION OF CORROSIVE MERCURIC CHLORIDE TO TOXIC SYMPTOMS OCCURRING IN WORKERS

To the Editor:—Given a case wherein a workman has his hands in a solution of mercuric chloride every day, are there any recorded toxic symptoms that could produce a spastic muscular condition of the forearm, causing a marked tremor on attempting to write? Are there any known cases of systemic poisoning from external use of this solution; if so, is one of the symptoms shown by muscular tremor?

R. W. CHAPMAN, M.D., Kearny, N. J.

ANSWER.—There are good reasons to believe that corrosive mercuric chloride may give rise to poisoning under the conditions mentioned. Both aqueous solutions or suspensions of mercuric chloride as used in antifouling paints for ship hulls, or fungicidal paints employed in tree surgery, are capable of causing mercurialism. It is not, however, equally well established that the entry of the mercury is through the skin. Rather it is believable that vapors as respired are responsible. It has been maintained that mercury inunctions are valuable only from the mercury that evaporates and not from skin absorption. The attendant applying the inunction wearing rubber gloves may exhibit as much mercury in the urine as the patient so treated. Dentists who rub up mercury amalgams for fillings may present mercury in their urines, but their assistants, in the same room, who do not make the amalgams may also show mercury. Occasionally patients treated for infections with mercury salts and wet dressings may develop a mercury stomatitis. This may be due not to absorption through the skin but to vapors from the dressings or dusts from dried out dressings. As only 0.4 mg. of mercury taken in daily may cause mercurialism, relatively trivial exposures may lead to this disease.

Intention tremors are characteristic of mercurialism. Usually the finer the object to be handled, the greater the tremor. The tremor may be irregular. A fine tremor may accompany the coarse intention tremor. At rest the tremor disappears, which is unlike the tremor of Parkinson's disease, in which it continues even during sound sleep. Although the tremor may be the sole evidence of mercurialism, ordinarily there are or have at an earlier time been present other manifestations, such as stomatitis, insomnia or erythismus. The person poisoned by mercury is notably shy. The entry of a stranger or an official into a work place is often sufficient to influence the affected person so that he cannot move a muscle for the time being. Medical examinations are temporarily upsetting to these patients. Workmen with exaggerated intention tremors under examination conditions are often able to perform their accustomed work in a satisfactory manner.

The second portion of this query is essentially answered in the foregoing. For further emphasis it may be said that, apart from mercury dermatitis, all cases of mercurialism may be systemic, the point of entry after local exposure or application not being the skin but the respiratory or intestinal tract.

BRONCHIECTASIS DUE TO INHALED HAIR

To the Editor:—Please inform me as to the method of treatment of a man, employed as a barber, with foreign bodies (fine hair clippings) in the right bronchus at the region where this bronchus enters the lung. This patient has been coughing up hair clippings for the past two years and at monthly intervals has had exacerbations of profound pain in the right side of the chest at the level of the second and third interspace near the sternum, with expectoration of red (bright) blood-tinged sputum. The temperature ranges from 101 to 102.5 F.; the pulse is 100, and some nausea and vomiting is occasionally present. In the sputum streptococci and staphylococci were found, but no tubercle bacilli. Roentgen examination reveals an inflammatory process in the lung where the bronchus enters the right lung; there are also evidences of healed tuberculous processes in the right apex. Please omit name. M.D., Indiana.

ANSWER.—In all probability the patient is suffering from a secondary bronchiectatic condition due to the presence of a foreign body in the bronchus. In this condition the expectoration of blood is a frequent symptom, the rise in temperature being caused by intermittent attacks of a local pneumonitis. The treatment is first prophylactic: The patient should either wear some type of a nose and mouth mask while engaged in his occupation, or seek some other line of work. For the present complaints, weekly lavage of the bronchus involved is recommended. This can best be done with the aid of a bronchoscope. Aside from this, postural drainage employed twice daily might be of some value. It is questionable whether the internal administration of any drug would be of value to this patient.

HEREDITY IN DISEASE

To the Editor:—Please give me a few words concerning the heredity of diseases such as syphilis and tuberculosis. Are any diseases transmitted by the germ or sperm cells of reproduction? Are they accidental infections when children are born with evidence of disease?

G. H. VAN DYKE, M.D., Winona Lake, Ind.

ANSWER.—Syphilis in a new-born child is now almost universally considered to have been transmitted by the mother through the placenta. It is realized that there is a possibility of a granular or rest form of *Spirochaeta pallida* in the male being a factor in paternal transmission of the disease, but definite evidence is lacking that syphilis has ever been transmitted to the product of conception by the male. Colles' law, formulated before the Wassermann test was available, stated that a nonsyphilitic mother may give birth to a syphilitic child. Thus it was considered that the father was responsible. This view is no longer held. The Wassermann reaction has proved that the large majority of apparently healthy mothers who bear syphilitic children are themselves affected with latent syphilis. The others can probably be accounted for by the fact that a negative Wassermann reaction is not reliable in every case.

In the light of present knowledge, neither the sperm cell nor the ovum is a factor in the transmission of any infectious disease. Congenital diseases are not accidental infections. Barring the possibility of paternal transmission of syphilis, they have resulted from systemic disease of the mother. Gonorrheal ophthalmia neonatorum is an accidental infection, in most instances, due to gonorrhea in the mother at the time of delivery. A note on hereditary tuberculosis appeared in Queries and Minor Notes recently. It may be transmitted by the mother, but never by the father.

TREATMENT OF CHRONIC URETHRITIS

To the Editor:—I should like to have some advice in a rather peculiar case of mine. I have under my care a young man with a urethritis of about five months' duration. The case started as an ordinary urethritis and showed good improvement for a while. At present both portions of urine are clear; there are no subjective complaints and all the symptoms consist of a slight occasional discharge only in the morning and some shreds in the first portion of the urine. These shreds offer a peculiar aspect as they consist of fine transparent membranes which under the microscope as well as the discharge do not show anything but urethral epithelium. There are no bacteria and no pus. The process was always confined to the anterior urethra; the prostate is unaffected and sounds can be passed up to 26 French with only a slight resistance at one point. By the urethroscope the same whitish membrane shreds can occasionally be seen. The condition is refractory to all treatment that I have tried so far. Kindly give me some information, especially as far as treatment is concerned, or refer me to a proper book dealing with the subject particularly.

M.D., New Jersey.

ANSWER.—The condition referred to is a not uncommon one following prolonged treatment for urethritis. This excessive shedding of the urethral epithelium cells is best attended to by abstaining from all local applications.

IRRIGATION OF LUNG

To the Editor:—I was much interested in reading an abstract (THE JOURNAL, Sept. 15, 1928, p. 833) on irrigating lung lesions of "tuberculosis, bronchiectasis, and chronic bronchitis" by C. L. Wayman. Kindly give me some more information as to the feasibility of such a procedure and the benefits to be gained from it. I see a great many of all three kinds of cases and the usual types of treatment are very unsatisfactory.

W. G. JONES, M.D., Mirag, S. M. C., India.

ANSWER.—Irrigation of the lung through a tracheal catheter as described by C. L. Wayman (*J. Missouri M. A.* **25**:372 [Aug.] 1928) has not as yet obtained sufficiently wide trial to warrant a pronouncement on its merits. While there is no doubt as to its feasibility there is considerable doubt as to its merits, particularly in the treatment of tuberculosis, the active lesions of which are, as is well known, inaccessible by way of the air passages.

PARALYSIS AGITANS OR ENCEPHALITIS

To the Editor:—I have a case that has been diagnosed as paralysis agitans and also as chronic encephalitis. Will you discuss the two and outline proper treatment. How can the tremor be controlled, as well as the gastric hyperacidity, persistent insomnia, and exhaustion syndrome? Please be as detailed as possible in discussing the care and treatment of such cases, as I am in need of real assistance, having tried a course of treatment—"protein shock therapy"—with indifferent results, and almost the whole list of hypnotics without appreciable benefit. Do you think a course of treatment with solution of potassium arsenite (Fowler's solution) and potassium iodide in increasing and decreasing dosage worthy of a second trial?

M.D., Massachusetts.

ANSWER.—Many books and hundreds of articles have been written on these subjects in recent years. Whether the case is one of true paralysis agitans or encephalitic parkinsonism, scopolamine hydrobromide is likely to be the best remedy. Solution of potassium arsenite and potassium iodide are generally worthless.

TREATMENT OF NASAL INFECTION

To the Editor:—Will you kindly outline the most modern treatment for nasal catarrh? There is a constant accumulation of mucus in the throat and a foul breath. Please use initials.

M.D., Virginia.

ANSWER.—Such a foul breath as described arises from an accumulation of secretion at the back of the nose or in the nose. The constant accumulation of mucus in the throat comes usually from a back flow of nasal secretion; for instance, from an infected sinus. It sometimes comes from an infected mucous membrane in the nose or throat. The cause can be determined on examination. The most satisfactory treatment consists in washing out the nose with a warm alkaline solution; for instance, 0.3 Gm. each of sodium bicarbonate, sodium borate, sodium chloride and sugar dissolved in 100 cc. of warm water. A rubber pear shaped nasal syringe with an ounce capacity should be used, the stream being directed gently along the floor of the nose with the head bent slightly forward and the mouth open. Physiologic solution of sodium chloride often answers well if used in the same way.

CHOREA — THEOPHYLLINE

To the Editor:—1. I should like some information about facial chorea. The condition included the chest and diaphragm but has partially subsided; the face, however, when the patient tries to read, is in a continual spasm. The chest symptoms have about disappeared. The patient is a woman, aged 57, and the chorea is of two years' standing. It followed two automobile accidents in which the frontal part of the head was bruised and cut severely. 2. Is euphyllin a coronary artery dilator, or what good is it as a heart remedy? What is its action, other than diuretic?

M.D., Kansas.

ANSWER.—1. It would be better to describe the facial movements complained of by the patient than to label them chorea, as, with the history given, the likelihood of the condition being chorea is not great. If the spasms are unilateral they may be part of a facial spasm that is of unknown origin and is usually treated by injection of the facial nerve with weak alcohol, which, of course, while relieving the spasm, causes a partial facial palsy. If it is bilateral, and especially since it seems at one time to have involved the chest and diaphragm and to have followed an accident, it is more likely to be of psychogenic origin. The treatment then is necessarily psychotherapy in the form of strong suggestion or possibly hypnosis. But the prognosis for recovery from these head tics in the elderly, when they have existed any length of time, is not good. A more remote possibility, provided the movements are of extrapyramidal type, is a traumatic lesion of the basal ganglions at their most anterior portions. But no definite information can be given without a description of the movements.

2. Euphyllin is theophylline rendered somewhat more soluble by ethylenediamine. Theophylline is reported to act as a dilator of the coronary arteries, increasing the rapidity of blood perfusion of the heart; hence its nutrition. Theophylline is more powerful in this respect than caffeine, as shown by animal experiments.

PHARYNGITIS — PLEURAL EFFUSION

To the Editor:—1. An active woman, aged 75, developed an acute pharyngitis, seven years ago, while in Palestine. In the course of two weeks, symptoms in the pharynx subsided but the lingual and buccal membranes became painful. Since that time the mucous membrane has been intolerant of hot, spiced and sour foods, and on examination appears to be thin, abnormally smooth and atrophic. There is no evidence of leukoplakia. I would appreciate any information as to diagnosis and treatment. 2. A woman, aged 63, developed left-sided pleural effusion, following pulmonary embolism from phlebitis of the left internal saphenous vein. Repeated aspirations, with reinjection of air, have not effected a cure. What can be done? Please omit name.

M.D., Pennsylvania.

ANSWER.—1. It is quite likely that one of two diagnoses may apply to this case. It is possible that the patient has a pernicious anemia, for this condition is often known to produce changes in the mucosa of the throat, mouth and tongue. A careful blood examination, including stained smears, is therefore absolutely essential. On the other hand, it is possible that the condition is the result of an atrophic rhinitis which, when it extends downward, has a tendency to cause a dry, glazed, very sensitive condition of the pharyngeal mucosa, which is characteristic of atrophic rhinitis, often termed pharyngitis sicca.

2. In this instance, the introduction of air into the pleural cavity is contraindicated. It is well known that a pneumothorax frequently results in some pleural effusion. A small amount of fluid will probably become absorbed as the circulation gradually becomes adjusted to the conditions. Repeated aspiration before the amount becomes large enough to embarrass respiration is important. The injection of drugs is inadvisable.

VALUE OF THE SEDIMENTATION TEST

To the Editor:—I noticed in THE JOURNAL (Dec. 15, 1928, p. 1915) a description of the technic for doing the sedimentation test. None of my textbooks mention it. Please give in detail its interpretation and value, and the indications for its use.

A. W. PATTERSON, M.D., Fonda, Iowa.

ANSWER.—The literature on the sedimentation test is voluminous. There are several variations of the original method of making the test and so many variations in results that it is difficult to estimate its value correctly. It cannot be said to be indicated in any disease condition. It has been found to be of

most value as a check on the clinical diagnosis of pulmonary tuberculosis and inflammatory pelvic disease. A rapid sedimentation rate giving a high sedimentation reading in these conditions indicates active infection; a gradually decreasing rate and reading indicates improvement. Return to normal, of course, following any condition in which the rate is elevated means that recovery is complete. The normal reading in men is said to be from 1 to 3 mm. (maximum, 4 to 7) after one hour; in women, from 4 to 7 mm. (maximum, 8 to 9). Not all authors agree as to these figures, however; some consider higher figures still within normal limits. A reading of more than 30 mm. for one hour is considered to be definitely abnormal, while in many diseases a reading of 100 mm. is the rule. According to Bochner and Wassing, "the sedimentation rate is increased in all febrile conditions; in many inflammatory conditions without fever; in pregnancy after the third month; after parenteral introduction of a foreign protein; after therapeutic x-ray treatment or influences of radioactive substances upon the organism; in many kidney diseases; in liver diseases where there is a lack of normal protein catabolism present; in tumors where there is resorption of cell products due to disintegration of the tumor, and in all conditions where there is a decrease of red cells." No definite sedimentation rates that are either diagnostic or prognostic have, however, been determined for these conditions. The clinical value of the test depends on its frequent repetition. It must be made daily or oftener. It is a hospital procedure, and results by unskilled workers are questionable. In most cases in which the sedimentation rate is abnormal, a satisfactory diagnosis and prognosis can be made on the clinical aspects of the case. It can only be said that, the more rapid the sedimentation rate, the more acute is the causative process; and the more marked the sedimentation reading, the poorer is the prognosis. The sedimentation rate is usually normal in the majority of gastric and intestinal diseases, endocrine disturbances, organic nerve disease, myalgias and neuralgias (Westergren, A.: *Internat. Clin.*, March, 1928, p. 70).

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, March 5, 1929. Sec., Dr. Harry C. DeVighne, Territorial Medical Examining Board, Juneau, Alaska.

CALIFORNIA: Los Angeles, Feb. 4-7, 1929. Sec., Dr. Charles B. Pinkham, 420 State Office Building, Sacramento, Calif.

CALIFORNIA—Reciprocity: San Francisco, March 13, 1929. Sec., Dr. Charles B. Pinkham, Board of Medical Examiners, 420 State Building, Sacramento, Calif.

CONNECTICUT: Basic Science; *prerequisite* to examination for medical license; New Haven, February 9. Address State Board of Healing Arts, 1895 Yale Station, New Haven, Conn.

CONNECTICUT—Homeopathic: New Haven, March 12, 1929. Sec., Dr. Edwin C. M. Hall, Homeo. Medical Examining Board, New Haven, Conn.

KANSAS: Topeka, Feb. 12, 1929. Sec., Dr. A. S. Ross, Board of Medical Registration and Examinations, Sabetha, Kan.

MAINE: Portland, March 12-13, 1929. Sec., Dr. Adam P. Leighton, Board of Registration of Medicine, 192 State House, Portland, Me.

MASSACHUSETTS: Boston, March 12-14, 1929. Sec., Dr. Frank M. Vaughan, Board of Registration in Medicine, 144 State House, Boston, Mass.

NATIONAL BOARD, Parts 1 and 2: All class A medical schools, Feb. 13-15, 1929. Sec., Mr. Everett S. Elwood, 225 South Fifteenth St., Philadelphia.

NEBRASKA: Omaha, Feb. 13-15, 1929. Dir., Mrs. Clark Perkins, Dept. of Public Welfare, Bureau of Examining Boards, Lincoln, Neb.

NEW HAMPSHIRE: Concord, March 14-15, 1929. Sec., Dr. Charles Duncan, State Medical Board, State House, Concord, N. H.

OKLAHOMA: Shawnee, March 12-13, 1929. Sec., Dr. J. M. Byrum, Board of Medical Examiners, Shawnee, Okla.

PHILIPPINE ISLANDS: Manila, March 5, 1929. Sec., Dr. Jose V. Gloria, Board of Medical Examiners, 341 Ronquilla Sta., Cruz, Manila, Philippine Islands.

PORTO RICO: San Juan, March 5, 1929. Sec., Dr. Diego A. Biascoechea, Board of Medical Examiners, 3 Allen Street, San Juan, Porto Rico.

VERMONT: Burlington, Feb. 12, 1929. Sec., Dr. W. Scott Nay, Underhill, Vt.

Ohio October Reciprocity Report

Dr. H. M. Platter, secretary of the State Medical Board of Ohio, reports 28 physicians licensed through reciprocity with other states as of Oct. 2, 1928. Two physicians were licensed by endorsement of credentials. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Univ. of Arkansas School of Medicine	(1927)		Arkansas
Howard Univ. School of Medicine	(1926)	(1927)	Dist. Columbia
Univ. of Georgia Medical Department		(1927)	Georgia
Univ. of Illinois College of Med.		(1927)	Michigan
Indiana Univ. School of Medicine		(1926)	Indiana
Univ. of Kansas School of Medicine		(1926)	Kansas
Univ. of Louisville School of Medicine		(1925)	Kentucky
Univ. of Maryland School of Medicine and the College of Phys. and Surgs.	(1920)	West Virginia; (1926)	Maryland
Johns Hopkins Univ. School of Med		(1923	Maryland
Univ. of Michigan Medical School	(1926)	(1927)	Michigan
Creighton Univ. School of Medicine		(1927)	Nebraska
Vanderbilt Univ. School of Med.	(1925)	Tennessee; (1925)	Texas
Meharry Medical College	(1920)	Arkansas; (1924) (1927)	Tennessee
Univ. of Vermont College of Medicine		(1926)	Vermont
Medical College of Virginia		(1927)	Virginia
Queens Univ. Faculty of Medicine		(1927)	New York
Univ. of Western Ontario Med. School		(1926)	Michigan
Laval Univ. Faculty of Medicine		(1920)	California
University of Munich		(1919)*	Texas
University of Budapest		(1912)	Wisconsin

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement with
Harvard Univ. Medical School		(1927)	N. B. M. Ex.
Univ. of Virginia Dept. of Medicine		(1926)	N. B. M. Ex.

Dr. Platter also reports 6 physicians licensed as of Oct. 3, 1928, having passed the examination in June, 1928. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Ohio State University College of Medicine		(1928)	80.9, 81, 81.4, 82.5, 82.9, 83

* Verification of graduation in process.

Colorado October Examination

Dr. Philip Work, secretary of the Colorado Board of Medical Examiners, reports the written examination held at Denver, Oct. 2, 1928. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Eleven candidates, including 7 osteopaths, were examined, 7, including 5 osteopaths, passing and 4, including 2 osteopaths, failing. Eleven physicians were licensed through reciprocity with other states. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Univ. of Colorado School of Medicine		(1927)	90.7
Univ of Dublin, Ireland		(1900)	80.0
Osteopaths			80, 81.1, 81.2, 84.7, 87.7

College	FAILED	Year Grad.	Per Cent
St. Louis College of Phys. and Surgs.		(1919)	68.8
Kansas City College of Med. and Surg.		(1924)	47.1
Osteopaths			66.6, 73.6

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Coll. of Medical Evangelists		(1928)	California
Rush Medical College		(1912)	Illinois
Northwestern Univ. Medical School	(1921)	Illinois; (1926)	New Jersey
Harvard Univ. Medical School		(1927)	California
Univ. of Minnesota Medical School		(1923)	Iowa
Washington Univ. School of Medicine		(1914)	Missouri
St. Louis Univ. School of Medicine		(1923)	Missouri
Medico-Chirurgical College of Philadelphia		(1911)	Penna.
College of Phys. and Surgs., Memphis		(1911)	Tennessee
University of Würzburg		(1896)*	Kansas

* Verification of graduation in process.

Nevada November Examination

Dr. Edward E. Hamer, secretary of the Nevada Board of Medical Examiners, reports the written examination held at Carson City, Nov. 5-7, 1928. The examination covered 11 subjects and included 100 questions. An average of 75 per cent was required to pass. Of the 5 candidates examined, 4 passed and 1 failed. Seven physicians were licensed through reciprocity with other states. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Atlantic Medical College		(1908)	73.0*
Univ. of Minnesota Medical School		(1911)	90.0
Missouri Medical College		(1897)	75.6
Medical College of Virginia		(1927)	90.0

College	FAILED	Year Grad.	
St. Louis College of Phys. and Surgs.		(1921)	58.8

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Oakland College of Med. and Surg.		(1920)	California
National Medical University		(1898)	Illinois
Tulane University of Louisiana School of Medicine		(1922)	Louisiana
St. Louis College of Physicians and Surgeons		(1914)	Oregon
Barnes Medical College		(1903)	Utah
Western Reserve University School of Medicine		(1883)	Penna.
Jefferson Medical College of Philadelphia		(1900)	Penna.

* On account of years of practice, this candidate was given a passing grade.

Book Notices

ANTHROPOLOGY AND MODERN LIFE. By Franz Boas, Ph.D., Professor of Anthropology, Columbia University. Cloth. Price, $3. Pp. 246. New York: W. W. Norton & Company, Inc., 1928.

For many years the distinguished professor of anthropology at Columbia University has represented scientific leadership in his field. It is therefore well to have from him a brief, well written statement on the scope of this subject in its relationship to other sciences. Problems of racial character, the study of human beings in groups, all of the basic sciences associated with medicine and with biology being utilized, are comprehended in the author's conception of anthropology. Thus, one of the most important sections deals with the interrelation of races and with antipathy between white and black and white and yellow peoples. Boas believes that racial antipathy can be broken down only if we succeed in creating among young children social groups that are not divided according to the principles of race, and which have principles of cohesion that weld the group into a whole. He believes that the interests of mankind are not well served if desires for national power are instilled into the minds of the young, and he is convinced that eugenics is not to be accepted as a panacea for human ills, but as a dangerous sword that may turn its edge against those who rely on its strength. He conceives the proper field of eugenics to be an attempt to suppress propagation of defectives whose deficiences cannot be improved, and to prevent marriages that will unavoidably lead to the birth of disease stricken progeny. Other chapters concern criminology, the stability of culture, and the whole field of education and modern civilization. The book is one of the most enlightening texts for the average man that has been made available, since it will help to familiarize him with the problems and the hopes of modern science.

DIE BEDEUTUNG DES RETIKULOENDOTHELIALSYSTEMS FÜR DAS STREPTOKOKKENSEPSISPROBLEM. Von Professor Dr. N. Louros, Leiter der wissenschaftl. Abtlg. der Staatlichen Frauenklinik Dresden, und Dr. H. E. Scheyer. Paper. Price, 14 marks. Pp. 101, with 17 illustrations. Leipzig: Georg Thieme, 1928.

During the past few years, a number of articles by Louros and A. Schmechel or Louros alone dealing with the reticuloendothelial system have appeared in periodicals. They constitute the basis for this monograph. These writers with Scheyer have contributed and also E. Gaessler, who concludes that ultraviolet rays, roentgen rays and the light from mercury lamps have little effect on the course of events when white mice are infected with streptococci. The investigations are reported from a municipal clinic in Dresden and the authors are evidently interested chiefly in gynecology and obstetrics. The experiments were with white mice exclusively, and large numbers of animals were used to learn the action of various substances on streptococcal infection and the behavior of the reticuloendothelial system when the agents were used. They included blocking of the reticulo-endothelial cells with different colloids. In many of the experiments the severity of the infection was lessened. There is not much clue to the constitution of the substances whose therapeutic value was studied. Some contained metals and others were evidently proteins, carbohydrates or fats, all with proprietary names. There is a large bibliography. The illustrations are good and many are in colors.

THE NORMAL AND PATHOLOGICAL PHYSIOLOGY OF BONE: Its Problems. By R. Leriche, professor de clinique chirurgicale a la Faculté de Strasbourg, and A. Policard, professor d'histologie a la Faculté de Lyon. Translated by Sherwood Moore, M.D., Professor of Radiology, Washington University School of Medicine, and J. Albert Key, M.D., Assistant Professor of Clinical Orthopedic Surgery, Washington University School of Medicine. Cloth. Price, $5. Pp. 236, with 33 illustrations. St. Louis: C. V. Mosby Company, 1928.

Owing to the dearth of textbooks of physiology dealing with the normal and pathologic physiology of bone, it was surprising to find this subject, which might appear dry except to a general surgeon or orthopedist, not only highly interesting and lucidly presented but, what is more, highly unorthodox in many particulars. Some readers will no doubt balk when they first read of the minor function of the periosteum in osteogenesis and the major importance of connective tissue (anywhere in the body) in the processes of calcification and ossification. But the experimental data and clinical observations offered are so cogent that one becomes eager to subject the theories presented to immediate experimental test, essentially for the practical advantages of aiding callus formation in the repair of fractures. All surgeons, especially those interested in bones, should not only have this book on their shelves but help elucidate the subject further by their own research. The translators are to be commended for their interest and work in bringing this valuable book with its extensive bibliographic references before the English speaking profession.

A HISTORY OF PATHOLOGY. By Esmond R. Long, Ph.D., M.D., Professor of Pathology, University of Chicago. Cloth. Price, $5. Pp. 291, with illustrations. Baltimore: Williams & Wilkins Company, 1928.

In twelve compact chapters, Dr. Long carries the reader from the period of antiquity, through the period of Galen and the middle ages, to the rise of modern pathology and bacteriology under Rokitansky, Virchow and Pasteur. Since pathology rests inevitably on a knowledge of anatomy and physiology, the work constitutes a good one-volume history of medicine, in which, however, the theme is the direction of study by new information developed at various times concerning the changes that take place in the tissues in disease. The style is simple, direct and, on the whole, quite technical. The book has its chief appeal, therefore, for the medical and technical reader rather than for the layman. The illustrations, which are numerous, add greatly to the attractiveness of the book.

LEHRBUCH DER BLUTKRANKHEITEN. Für Ärzte und Studierende. Von Prof. Dr. Hans Hirschfeld, Abteilungsleiter am Universitätsinstitut für Krebsforschung an der Charité in Berlin. Second edition. Paper. Price, 22 marks. Pp. 263, with illustrations. Leipzig: Johann Ambrosius Barth, 1928.

This is a book of moderate size, for the practitioner or student, occupying a position between the short compend and the exhaustive treatise on blood diseases. As such, it will be found useful among the rather numerous works dealing with this subject. The general part deals with the normal blood, methods of examination, and the general types of blood changes. Methods recently introduced are well described. The larger special section deals with the diseases of the blood and blood-forming organs. The classification of the anemias and leukemias is made along modern lines, and the section on hemorrhagic diatheses is written in clear and easily remembered form. Matters of purely theoretical interest are largely omitted; the book has a definitely practical purpose. Hence diagnosis and methods of treatment are stressed. As usual, the author is chiefly concerned with morphologic changes in the blood. Granted that the physicochemical changes have not been as thoroughly studied, it would seem that such matters as alterations in the serum proteins might be given a little more attention in books of this type. Colored plates of the different blood cells and of a few typical blood pictures are included, as well as illustrations throughout the text.

BLOOD, A STUDY IN GENERAL PHYSIOLOGY. By Lawrence J. Henderson, Professor of Biological Chemistry in Harvard University. Cloth. Price, $5. Pp. 397, with illustrations. New Haven: Yale University Press, 1928.

This gives clinical and physiologic investigators the information needed to proceed intelligently with work on the respiratory and metabolic functions of the organism from a physicochemical point of view. To one reading Henderson's original paper on the regulation of neutrality in the organism just twenty years ago, the present volume could hardly have been foreseen; yet it is the logical outgrowth of this pioneer work. Step by step in the laboratories of this country and abroad, data have been supplied which he has synthesized into a complete and rational picture of the blood as a physicochemical system and what this system means for the physiologic processes of the organism as a whole. It is an excellent example of the harmonious welding of concrete details and abstract thought. The opening chapter is concerned with an exposition of the definition of general physiology and the relations between the subject matter of the book and the broader discipline general physiology. This chapter is philosophical in its content and in its treatment. In the four succeeding chapters the problem is defined and the data necessary for physicochemical description of the blood are

presented. In the next three chapters a synthesis is undertaken by means of the nomographic method of representing quantitatively the relations between the components of the system. The technic involved in this graphic method of representing relations between several dependent variables is minutely described. The book closes with a discussion of what is implied by physiologic equilibrium, adaptation, fitness and integration. An appendix by Dr. D. B. Dill gives detailed directions for the collection of the data necessary for the construction of a nomogram of blood.

THE DOCTOR LOOKS AT MARRIAGE AND MEDICINE. By Joseph Collins. Cloth. Price, $3 net. Pp. 313. Garden City, N. Y.: Doubleday, Doran & Company, Inc., 1928.

Dr. Collins has here collected many of his essays published during recent years in *Harper's Magazine*, the *Cosmopolitan*, the *Outlook* and similar publications. He has rather fixed opinions relative to the solution of certain social and medical problems which are still debatable, but his wide grasp of the problems of life in general and an exceedingly good literary style compensate for a small amount of misinformation and possibly bad judgment. He realizes that he has overstated his advocacy of group practice but believes, as do many others, that some organization is necessary to accommodate medical practice to modern conditions. The book will make the reader think, and it will keep him interested while he is thinking. What more can one ask of any book of essays?

GUTARTIGE RIESENZELLGESCHWÜLSTE. Eine vergleichend histologische Untersuchung. Von Privatdozent Dr. A. von Albertini, Prosektor des Pathologischen Institutes, Zurich. Mit einem Vorwort von Prof. Dr. H. v. Meyenburg. Paper. Price, 9 marks. Pp. 76, with 34 illustrations. Leipzig: Georg Thieme, 1928.

This is a small monograph on excellent paper with splendid illustrations in which an attempt is made to bring into a single group, to be known as benign giant-cell tumors, the simple epulides, the solitary giant-cell tumors of bone, and certain tumors of the skin and tendon sheaths which also contain giant cells. The result is not at all satisfactory. The author concludes that all these growths, which also include some xanthomas, possess in common an origin from mesenchymal tissue which has escaped complete differentiation into mature structures; that the giant cells also develop from this mesenchyme and later may disintegrate into single cells, and that the maturing of the original ground substance into giant cells, spindle cells and stroma is alike in all these growths. Views of different writers about the pathogenesis and histogenesis of these tumors are presented at length, including some consideration of American literature, but the discussion is cursory. The bibliography is extensive. It is not clear why space is also given to an account of a free body from a knee joint, to a few sarcomas, or to fibroxanthomas devoid of giant cells. Only eleven of the sixteen growths described are included in the group of benign tumors. One of the sarcomas briefly described developed from one of the multiple lesions in a patient with osteitis deformans and has been reported elsewhere (*Virchows Arch. f. path. Anat.* **268**:259, 1928). Evidence by the author of a commendable reserve concerning the benignancy of giant-cell tumors of bone detracts somewhat from the attempt to establish a single group of benign tumors containing giant cells.

THE NEW DAY IN HOUSING. By Louis H. Pink. With an introduction by Alfred E. Smith, Governor of New York. Price, $3.50 net. Pp. 208, with illustrations. New York: John Day Company, 1928.

In a country with as much space as is still available in the United States, the housing problems do not constitute, except in a few places, a major factor from the point of view of health. True, in Philadelphia there are reported to be 10,000 insanitary privies, Chicago has some tenements, and the difficulties of New York City are perhaps as great as those of any community in the world. It is, no doubt, with a view to anticipating situations that may arise that Pink presents the story of housing in this volume, emphasizing the manner in which many important European communities have solved their troubles, and looking forward to the tremendous saving that is to be realized when cities are constructed on a definite city plan. The work is exceedingly well written, beautifully printed, and profuse with good illustrations. Any one at all interested in the subject will find this an exceedingly worth while book.

Books Received

CHIRURGISCHE KRANKHEITEN IM KINDESALTER MIT BESONDERER BERÜCKSICHTIGUNG DER EINSCHLÄGIGEN PÄDIATRISCHEN FRAGEN. Von Erwin Gohrbandt, a. o. Professor an der Universität, Berlin, Paul Karger, Privatdozent für Kinderheilkunde, und Ernst Bergmann, Assistent an der chirurgischen Universitäts-Klinik der Charité in Berlin. Paper. Price, 65 marks. Pp. 916, with 433 illustrations. Berlin: S. Karger, 1928.

The surgery of childhood.

MANUAL OF HYGIENE AND PUBLIC HEALTH. A Text-Book for Medical and Public Health Students. By Jahar Lal Das, D.P.H., Offg. Asst. Director of Public Health, Bihar & Orissa. With an introduction by Lieut.-Colonel W. C. Ross, M.B., Ch.B., D.P.H., Director of Public Health, Bihar and Orissa. Second edition. Cloth. Price, 6/- net. Pp. 661, with 105 illustrations. London: Butterworth & Co., 1928.

An outline of sanitation with the problems of India in special perspective.

THE FUEL OF LIFE. Experimental Studies in Normal and Diabetic Animals. By John James Rickard Macleod, M.B., LL.D., D.Sc., Professor of Physiology, University of Toronto. Louis Clark Vanuxem Foundation Lectures Delivered at Princeton University, March, 1928. Cloth. Price, $2.50. Pp. 147, with illustrations. Princeton: Princeton University Press, 1928.

Erudite lectures on important problems in metabolism.

HANDBUCH DER GEISTESKRANKHEITEN. Herausgegeben von Oswald Bumke. Band VII: Spezieller Teil. Teil 3: Die exogenen Reaktionsformen und die organischen Psychosen. Von G. Ewald, F. Meggendorfer, B. Pfeifer, usw., usw. Paper. Price, 66 marks. Pp. 700, with 74 illustrations. Berlin: Julius Springer, 1928.

Another part of a German system of psychiatry.

LICHTWIRKUNG UND ANTIRACHITISCHER SCHUTZSTOFF IM LEBENDEN ORGANISMUS. Experimentelle und klinische Untersuchungen zur pathologischen Physiologie der Rachitis als Mangelkrankheit. Von Privatodozent Dr. Curt Falkenheim. Paper. Price, 9.80 marks. Pp. 131, with illustrations. Berlin: S. Karger, 1928.

Special studies of rickets and the effects of heliotherapy.

E. STIERLIN'S KLINISCHE RÖNTGENDIAGNOSTIK DES VERDAUUNGSKANALS. Von Dr. H. Chaoul, a. o. Professor an der Universität, Berlin. Mit einem Geleitwort von Ferdinand Sauerbruch. Second edition. Paper. Price, 84 marks. Pp. 642, with 893 illustrations. Berlin: Julius Springer, 1928.

Outline of roentgenologic study of the gastro-intestinal tract.

A TEXT-BOOK OF PATHOLOGY. By W. G. MacCallum, Professor of Pathology and Bacteriology, the Johns Hopkins University. Fourth edition. Cloth. Price, $10 net. Pp. 1177, with 606 illustrations. Philadelphia: W. B. Saunders Company, 1928.

New edition of a well established textbook in an advancing fundamental medical science.

BACTERIOLOGY. A Text-Book of Microorganisms. By Fred Wilbur Tanner, Professor of Bacteriology and Head of the Department, University of Illinois. Cloth. Price, $4.50 net. Pp. 548, with 138 illustrations. New York: John Wiley & Sons, Inc., 1928.

Brief textbook especially suited to college work.

EINSTELLUNG ZUR RÖNTGENOLOGIE. Eine Untersuchung über die Einfügung der Röntgenstrahlenanwendung in Praxis, Forschung und Unterricht. Von Prof. Dr. G. Holzknecht. Paper. Pp. 115. Vienna: Julius Springer, 1927.

Studies in roentgenology by a recognized German leader.

DIE METHODIK DER FERMENTE. Unter Mitarbeit von Fachgenossen. Herausgegeben von Carl Oppenheimer und Ludwig Pincussen. Lieferung 5. Band III: Die Fermente und ihre Wirkungen. Von Prof. Carl Oppenheimer, Dr. Phil. et Med. in Berlin. Nebst einem Sonderkapitel Physikalische Chemie und Kinetik. Von Prof. Dr. Richard Kuhn. Fifth edition. Paper. Price, 28 marks. Pp. 1265-1578, with illustrations. Leipzig: Georg Thieme, 1929.

ÜBER DIE AUFZUCHT FRÜHGEBORENER KINDER IM BASLER KINDERSPITAL UND DEREN ERGEBNISSE VON 1922 BIS 1927 MIT BESONDERER BERÜCKSICHTIGUNG DER FRÜHGEBURTENRACHITIS. Von Dr. A. Hottinger, Oberassistent am Kinderspital, Basel. Paper. Price, 8.40 marks. Pp. 136, with 51 illustrations. Berlin: S. Karger, 1928.

SPEECH PATHOLOGY WITH METHODS IN SPEECH CORRECTION. By Sara M. Stinchfield, Ph.D., Associate Professor of Psychology, Mount Holyoke College. Cloth. Price, $3.50. Pp. 266. Boston: Expression Company, 1928.

THE PSYCHOLOGY OF SPEECH. By Sara M. Stinchfield, Ph.D., Associate Professor of Psychology, Mount Holyoke College. Cloth. Price, $3.75. Pp. 331, with illustrations. Boston: Expression Company, 1928.

ELEMENTARY EUGENICS. A Revision of "The Third and Fourth Generation." By Elliot R. Downing. Cloth. Price, $1.75. Pp. 137, with 13 illustrations. Chicago: University of Chicago Press, 1928.

Medicolegal

Issuance of Fictitious Licenses as Fraud

(Munch v. United States (U. S.), 24 F. (2d) 518)

Munch was convicted in the United States district court, southern district of Florida, on two counts, charging him with using the mails to defraud. The first count alleged that he was a member and secretary of the Florida board of eclectic examiners at the time that board was abolished in 1921; that he and one Ronning, with others, devised a scheme to defraud, by the issuance to themselves, in the name of the board, of fictitious licenses to practice medicine and surgery, so that they could represent themselves to be duly qualified physicians and surgeons; that to execute the scheme, a letter was mailed in reply to an inquiry, stating that Ronning was licensed by the eclectic board in 1914 and again in 1921. The second count adopted the scheme alleged in the first count and set forth a letter addressed to one Treble advising him to secure "stock," a part of the scheme being to refer to licenses as "stock." Before the indictment was found, a search warrant was issued, authorizing the search of Munch's offices. This warrant was supported by an affidavit that went no further than to state that Munch mailed the letter described in the first count, in violation of section 37 and section 215 of the criminal code. The warrant was executed and certain papers seized. Munch promptly applied to the district court for the return of the papers, but the application was denied and certain of the papers were admitted in evidence against him, over his objection. On appeal to the circuit court of appeals, fifth district, Munch contended that the indictment was not legally sufficient, because it did not allege that his scheme was to defraud any one, but only that it was to sell fictitious licenses to persons who knew they were fictitious. The court said that this contention confused the offense charged with the evidence; that the offense charged was the issue of licenses to Munch and certain others, and the fraud intended was that they should represent themselves as duly licensed physicians. But the court held that although the first count sufficiently charged the offense of using the mails to defraud, the conviction could not be sustained because the evidence introduced to sustain the charge was illegally obtained. The Espionage Act of 1917 provides that a search warrant cannot be issued except on probable cause, supported by an affidavit naming or describing the persons and particularly the property and place to be searched. The affidavit in this case did not prescribe any place or property to be searched, nor show probable cause for the issuance of the search warrant, nor describe any papers, nor state that any papers described in the search warrant were in the offices or in the possession of Munch. The conviction on the second count could not stand, the court said, because Treble, to whom the letter therein set forth was addressed was not among the class of persons alleged in the indictment to be those to whom it was the intention to issue fictitious licenses and therefore there was necessarily a variance between the allegations and the evidence. The judgment of the district court was therefore reversed.

Revocation of License a Ministerial Act

(Cavassa v. Off et al. (Calif.), 265 P. 1022)

The California Pharmacy Act provides that the registration of any registered pharmacist who is convicted of violating it a third time shall be canceled. The plaintiff, a registered pharmacist, was notified by the defendants, the California State Board of Pharmacy, to show cause why his registration should not be revoked, because he had been so convicted. The plaintiff, Cavassa, brought suit to prevent such cancelation. From a judgment in favor of the defendants, the state board of pharmacy, the plaintiff appealed, claiming that the proceedings contemplated by the defendants in the notice served on him were beyond the jurisdiction of the board. That might be the case, said the trial court, if the defendants were adjudging or about to adjudge that the plaintiff was guilty of violating any statute, but as a matter of fact the guilt or innocence of the plaintiff in the present case had already been adjudged in actions against him previously tried in the justice court of San Mateo County. The secretary of the defendant board exercises not judicial but ministerial functions when he examines several judgments of convictions, adds them up, and compares the provisions thereof with those of the statutes and the names with those on the registration books and proceeds to cancel the registration. Whether those functions are performed by the secretary acting on his own volition or acting under the supervision of the board of pharmacy, the functions performed are but a ministerial act.

Roentgenograms in the Jury Room

(Kavale v. Morton Salt Co. (Ill.), 160 N. E. 752)

On a writ of certiorari to the supreme court of Illinois, from a judgment for the plaintiff in his suit based on personal injuries, the defendant contended that it was error for the trial court to permit certain roentgenograms that had been introduced in evidence and explained to be taken to the jury room, because, he argued, they were unintelligible to the average juror. The supreme court, in affirming the judgment, suggested that if they were unintelligible to the jury no injury to the defendant could result and that if the defendant believed they were unintelligible he might have objected to their introduction in evidence or have required an explanation. Section 76 of the Illinois Practice Act provides that "papers read in evidence, other than depositions, may be carried from the bar by the jury." This section has been construed to permit the jury to take with it roentgenograms introduced in evidence (*Chicago & Joliet Electric Railway Co.* v. *Spence*, 213 Ill. 220, 72 N. E. 796, 104 Am. St. Rep. 213). Roentgenograms must be identified as true representations of their subject, as is the rule with reference to photographs by a camera. They cannot be received in evidence until proper proof of their correctness and accuracy is produced. The supreme court of Illinois has not held, however, as a matter of law or fact, that all roentgenograms are unintelligible. In the present case the court held that the trial court did not err in permitting the roentgenograms to be taken by the jury.

Effect of Pardon on Revocation of License

(Hughes v. The State Board of Medical Examiners (Ga.), 142 S. E. 285)

The state board of medical examiners revoked the license of Hughes to practice medicine in Georgia, on the ground that he had been convicted of a crime involving moral turpitude and because he distributed pamphlets relative to the diseases of the generative organs. The superior court of Fulton County affirmed the revocation, and Hughes appealed to the supreme court of Georgia. The superior court did not err, the supreme court held, in admitting in evidence the indictment and sentence of Hughes for using the mails to defraud, his petition seeking to enjoin the board from hearing the charges against him, and copies of the pamphlets which he distributed. Excerpts from pamphlets issued by the government and by the state board of health, similar in substance to the matter distributed by Hughes, were properly excluded as irrelevant and immaterial. Evidence to show that Hughes was of recognized ability and to show his fitness for the practice of medicine was not admissible, the court said. The fact that Hughes had been pardoned might restore his civil rights, but it did not remove the fact of conviction, which, under the Georgia medical practice act, is made sufficient ground for revoking a license. The judgment of the superior court was affirmed.

Compensation for Disability, Not for Injury

(Sime v. Consumers' Bread Co. (Kan.), 265 P. 1114)

From a judgment for the plaintiff, under the workmen's compensation act, the defendant appealed to the supreme court of Kansas. The injured distal end of the plaintiff's right middle finger was amputated, leaving a part of the bone of the last joint. Scar tissue covering the end of the finger and adhering to the bone included a nerve ending, which caused the end of the finger to be tender. The joint next to the end was stiff because of contraction of the tendons, resulting from nonuse, and the next joint was partly stiff. The statute provides that

compensation for a specific scheduled injury shall be in lieu of all other compensation except medical expenses. The defendant paid the medical expenses of the plaintiff, paid him the amount provided by the schedule for the loss of the terminal joint of the second finger, and received a release. The plaintiff, who was a minor when the release was given, disaffirmed it, and in the district court, Reno County, obtained a judgment for $2,396.25, less the amount previously paid. On appeal, the defendant contended that when the legislature fixed compensation for a specific injury it must have taken into account the normal consequences of that injury. The plaintiff's physician testified that the results following the amputation were just about as usual in such cases, that the shortening and stiffening of tendons were such as usually followed finger injuries, and that in most cases of the same character the condition produced is the same as that of the plaintiff. The appellate court admitted that, if a person loses a portion of a finger, the hand is necessarily disabled. But, said the court, the question is whether the injury caused disability in addition to the loss of the end of the finger; the statute provides compensation not for injury but for disability. If there is disability in addition to that occasioned by the loss of the member itself, compensation may be allowed for additional disability.

Will of Inmate of Insane Asylum

(Livaudais v. Bynum et al. (La.), 116 So. 223)

The deceased, while confined in an insane asylum under a lawful commitment, made a will whereby he bequeathed his estate to his legal heirs and revoked a will made in favor of his former wife. She, after his commitment, had had their marriage annulled and had remarried, but she now sought to probate the earlier will in her favor, made before his commitment. From a judgment denying probate, she appealed. The supreme court of Louisiana held that under the laws of Louisiana commitment to an insane asylum is a matter only of police regulation. It has none of the effects of a formal interdiction, to deprive a person of his civil rights. Whether a person might or might not, even after formal interdiction, make a valid will during a lucid interval the court found it unnecessary to say, since the testator in this case had not been interdicted. In view of the uncontradicted evidence that the testator made his last will during a lucid interval, when he knew what he was doing and why, the judgment of the court below was affirmed.

Treatment Administered Provable by Lay Witness

(Packard v. Coberly et ux. (Wash.), 265 P. 1082)

This was an action for malpractice, incident to treatment of a rectal fistula, resulting in the death of the patient. From the judgment for the plaintiff, administratrix of the deceased, the defendants appealed to the supreme court of Washington. When treatments were being given, no one was present except the physician and the patient and his father. There were discrepancies between the testimony of the physician and that of the father as to just what was done. Experts agreed that the treatment described by the physician was proper and skilful and would not produce the results charged and that the treatment described by the father was improper and unskilful and might produce such results. The testimony of the father, with the testimony of other witnesses, brought before the jury a state of facts from which it might infer that the defendant applied an electrode to the rectum instead of to the fistulous opening only. The court held that the vital issue as to what treatment was given might be proved by any witness who knew any fact bearing on the point; it was not a question to be solved by medical expert testimony alone. On this issue, the court pointed out, the defendant stood before the jury like any other witness testifying to a fact. The jury might give to his testimony such weight as it deemed proper. The evidence was sufficient, therefore, to take the case to the jury. On cross-examination, the plaintiff testified that the deceased had been treated by another physician before he was treated by the defendant. The defendant called that physician as a witness. The plaintiff objected, claiming that anything that that witness had learned in the course of his treatment was privileged and therefore inadmissible. The objection was sustained by the trial court. The supreme court held that because the evidence of prior treatment was drawn from the plaintiff on cross-examination it was not a waiver of privilege or a voluntary opening of the door to permit the defendant to examine the physician whom he had summoned. The judgment of the court below was affirmed.

Admissibility and Use of Roentgenograms

(Bucktrot v. Partridge (Okla.), 265 P. 768)

The appellee, Partridge, sustained personal injuries as the result of an accident while she was an invited guest in the appellant's automobile. In the trial court the jury returned a verdict of $24,500 actual damages and $5,000 exemplary damages. The defendant appealed to the supreme court of Oklahoma. In her petition, the plaintiff alleged that the accident resulted in injury to the leg, hip and thigh. At the trial three physicians called by her testified that the pelvis had been shattered, splintered, and broken in two at the pubis, and that the ischium had been torn loose. A roentgenogram was introduced in evidence and from it the physicians were permitted to explain the injuries. The defendant objected on the ground that the evidence related to the pelvis, while the petition alleged injuries to the hip. The court pointed out, however, that, although the physicians used the technical terms as applied to the various injured parts and bones broken, they explained that in the usual and common acceptation of the term the parts injured might properly be considered as the hip. The defendant urged also that the introduction of the roentgenogram in evidence was error because it tended to inflame the minds of the jury against him. The court pointed out that the roentgenogram correctly showed the injuries received by the plaintiff. Error could not be predicated on the actual facts shown, when properly presented, even though such facts might be harrowing in their details and appearances. The rule laid down by the court in a lower case was fully complied with and the trial court properly admitted the result:

> The admission of x-ray plates in evidence rests fundamentally on the theory that they are the pictorial communication of a qualified witness who uses this method of conveying to the jury a reproduction of the object of which he is testifying; this being true, the x-ray plates must be made a part of some qualified witness' testimony and the witness should qualify himself by showing that the process is known to himself to give correct representations, and that it is a true representation of such object. *Bartlesville Zinc Co.* v. *Fisher,* 60 Okla. 139, 159, P. 476.

The defendant contended further that the verdict was excessive and the result of passion and prejudice on the part of the jury. The evidence tended to show that the defendant was seen drinking intoxicating liquor in the course of the trip and that he drove his automobile at a high and dangerous rate of speed, against the repeated protests of both the plaintiff and her father. The evidence showed that the plaintiff was 17 years old; that she remained in the hospital about two and a half months; that she suffered great pain and at the trial was unable to bear any weight on her right foot; that she could lie in bed in only one position; that one leg was several inches shorter than the other; that her injuries were permanent; that, because of the bones being broken and splintered, the pelvic cavity was reduced, which, physicians indicated, would interfere with childbirth if not make it impossible. The court could not say that the jury's verdict indicated passion and prejudice. The judgment of the trial court was affirmed.

Society Proceedings

COMING MEETINGS

American Association for the Study of Goiter, Dayton, Ohio, March 25-27. Dr. K. W. Kinard, Bryant Building, Kansas City, Mo., Secretary.

American Association of Anatomists, Rochester, New York, March 28-30. Dr. Lewis H. Weed, Johns Hopkins Medical School, Baltimore, Sec'y.

American Association of Pathologists and Bacteriologists, Chicago, March 28-29. Dr. H. T. Karsner, 2109 Adelbert Road, Cleveland, Secretary.

Pacific Coast Surgical Association, Catalina Island, California, February 22-23. Dr. E. L. Gilcreest, Fitzhugh Building, Union Square, San Francisco, Secretary.

Tri-States Medical Association of Mississippi, Arkansas and Tennessee, Memphis, February 6-8. Dr. A. F. Cooper, Bank of Commerce Bldg., Memphis, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics and Gynecology, St. Louis

16: 765-922 (Dec.) 1928

*Blood Sugar and Serum Calcium in Relation to Lactation in Women: Possible Relationship to Parturient Paresis. V. J. Harding, H. Murphy and C. E. Downs, Toronto.—p. 765.
*Repeated Laparotrachelotomy (Low, or Cervical Cesarean Section). J. B. De Lee, E. Nadelhoffer and J. P. Greenhill, Chicago.—p. 784.
Salpingitis: Case for Expectant Treatment. C. J. Miller, New Orleans. —p. 793.
*Diagnosis of Fetal Deformities in Utero. F. H. Falls, Chicago.—p. 801.
*Artificial Production of Sterility. J. Jarcho, New York.—p. 813.
Leiomyosarcoma of Uterus: Case: Review of Literature. E. C. Sage and A. J. Miller, Omaha.—p. 828.
*Cholecystographic Studies in Pregnancy. R. J. Crossen and S. Moore, St. Louis.—p. 840.
Spurious Pregnancy: Two Cases. R. Paddock, St. Louis.—p. 845.
Radiation Therapy in Gynecology. I. I. Kaplan, New York.—p. 855.
*Gonococcus Infection in Female Children. T. J. Williams, Iowa City. —p. 861.
Preservation of Ovary by Means of Intra-Uterine Transplantation in Radical Operations for Adnexal Disease. O. S. Pavlik, Chicago.—p. 867.
*Vaginal Discharge Due to Trichomonas Vaginalis. J. P. Greenhill, Chicago.—p. 870.
*Chorea Gravidarum. A. M. Campbell, Grand Rapids, Mich.—p. 881.
*Bacillus Pyocyaneus Bacteremia of Placental Origin. J. D. Soifer, New York.—p. 889.
Self-Retaining Cannula for Injection of Liquids or Gas in Tubal Insufflation. C. S. Harper, Madison, Wis.—p. 892.

Parturient Paresis.—The recent theories of parturient paresis in cattle are discussed by Harding et al. in the light of a possible relationship to similar disturbances in women. A lactation test of two hours' duration has been devised for women, and its relationship to the twenty-four-hour output of milk has been studied. Seventy-one per cent of the women examined secrete from 10 to 40 cc. of milk per square meter of surface every two hours. This constitutes the average lactation group. Only 15 per cent of women secrete more than 40 cc. of milk per square meter of surface during two hours, constituting a high lactation group. There is no essential difference in the blood sugar level of the three lactation groups, the average figure being 95 mg. per hundred cubic centimeters. Hypoglycemias produced by insulin lower the milk output, if the hypoglycemia is accompanied by nervous or emotional symptoms. The average serum calcium level for 136 patients is 9.7 mg. per hundred cubic centimeters. There is no essential difference in the level of serum calcium between the three lactation groups. The administration of parathyroid extract has no influence on the milk production. It appears difficult to raise the serum calcium by parathyroid extract during lactation. Toxic symptoms have been noted after the administration of parathyroid extract to a human subject. Some abnormal chemical conditions are reported in a case of puerperal septicemia.

Repeated Laparotrachelotomy.—In 718 laparotrachelotomies analyzed by De Lee et al., the operation had been done for the second time in eighty-two, for the third time in eight and for the fourth time in one. The indications for the first laparotrachelotomy were mainly contracted pelvis, which occurred in 83.1 per cent, and naturally the indication was carried over into the second pregnancy. All the patients who had third cesarean sections had contracted pelves, as did also the patient on whom the fourth section was done. The interval between the several sections varied from one to seven and one-half years, forty women having a second child within two and one-half years. This is a large percentage (51.3 per cent) and is slightly greater than the percentage of second births in 100 women taken at random from the hospital files (50 per cent). It is generally admitted that a relative sterility remains after the classic cesarean. Of the eight having a third cesarean section six had conceived within one year after the second operation. As far as sterility is concerned, laparotrachelotomy does not restrict it very much, and this is a strong argument for the cervical operation. The youngest patient on whom the section was repeated was 21, the oldest 40. In all patients the pregnancies were at or about term. Since the second cesarean was nearly always foreseen, a large percentage of the operations were elective, i. e., nearly 60 per cent, but the remaining patients were given a test of labor lasting from one to forty-six hours, the majority having less than twelve hours of pains. In these patients it was possible to see the effect of labor on the lower uterine segment and scar. Local anesthesia was the anesthetic of choice and was successful in 60 per cent of the cases, ether being next with 33 per cent, and combinations being used in the remainder. Sterilization was performed after the second section whenever the patient and her husband desired it, according to the method of Madlener. Thirty-one of the ninety-one patients were sterilized. In the 718 laparotrachelotomies there were nine maternal deaths, or 1.2 per cent. One woman died after her second operation. One died after her third, a total mortality of 2.2 per cent in the ninety-one repeated sections. Of the babies four died, one a monstrosity (anencephalus), one from atelectasis (the child of the mother who died after the third section), one from sepsis, probably umbilical, and one from infection acquired before labor.

Diagnosis of Fetal Deformities in Utero.—From his study of cases it seems to Fall that the following signs and symptoms when present in a given case are strongly suggestive of a deformed fetus in utero: 1. Hydramnios coming on usually about the seventh month and associated with permanent exaggerated uterine tension and easy ballottement is suggestive of fetal abnormality. This condition is not constant with fetal deformities. 2. Inability definitely to outline the fetal head suggests anencephalus while abnormal size or consistency indicates hydrocephalus. 3. Difficulty is experienced in differentiating between the fetal poles either by abdominal or by vaginal palpation when the deformity is anencephalus. 4. In anencephalic monsters a soft meningocele surrounded by a bony ring may be felt on vaginal examination with a finger inside of the cervix in cephalic presentations. 5. Fetal heart tones are heard faintly or not at all when the hydramnios is marked. They are usually normal or rapid during pregnancy, but during labor they are often slow and irregular or abnormally fast. With cephalic presentations, in anencephalic monsters they are frequently heard unusually low in the abdomen during labor, and the irregularity is most marked in these cases. 6. Abnormally active fetal movements, which may become convulsive if pressure is made on the head in cases of anencephalic monsters, may be seen and felt. 7. Roentgenograms will clearly determine the deformity as early as the sixth month, in anencephalic, hydrocephalic or spina bifida fetuses, but a negative picture does not rule out the possibility of a deformity.

Artificial Production of Sterility.—According to Jarcho, biologic immunization of the female organism to seminal products offers great promise of clinical application as a means of inducing temporary sterility. Should this method prove successful in human subjects, it will possess obvious advantages. It will enable many women suffering from temporary incapacity to postpone childbirth until such time as they may be physically fit for this function. And, since the equipment will be entirely in the hands of physicians, it can be used only for therapeutic purposes. The most promising method by which artificial biologic sterility may be produced in animals is by the injection of spermatozoa derived from the same or another species. Numerous independent investigators have obtained positive results in experiments on this subject. In Jarcho's experiments, rabbits immunized by injections of sheep or guinea-pig spermatozoa are still sterile after nearly seven months. The most effective results would, of course, be expected from the injection of living and active spermatozoa; but Jarcho also used spermatozoa killed by formaldehyde and spermatozoa

morphologically destroyed and probably likewise chemically altered by three different processes. The rabbits injected with dead spermatozoa are still sterile after nearly six and a half months.

Cholecystographic Studies in Pregnancy.—Crossen and Moore assert that cholecystography is a safe procedure in pregnancy, and sodium phenoltetraiodophthalein has apparently no effect on the uterus. There were no reactions in their series of cases beyond those which would be anticipated in a like number of women patients. In the early months of pregnancy cholecystography is as valuable in the diagnosis of cholecystic disease as it is in the nonpregnant state. The inconstancy of the results of this test of gallbladder function, when done in the later stages of gestation, renders it of no practical value for gallbladder diagnosis. Neither race nor the number of pregnancies had any apparent bearing on the conditions observed. Cholecystography indicates, at least in the early months of pregnancy, that toxemia does not affect the function of the gallbladder as related to the concentration of the dyes employed. Pregnancy modifies cholecystograms only by shifting the location of the gallbladder. One case in which cholecystography was done both antepartum and postpartum indicates the return of the vesicle to its usual position after delivery. This study suggests that factors other than altered function of the gallbladder are responsible for the high incidence of gallstones in women who have borne children. With the method employed the authors were unable to demonstrate that there was any stasis of bile. The greater the number of pregnancies, the greater the likelihood of a woman having gallstones; also, the greater the likelihood of a puerperal infection.

Gonococcal Vulvovaginitis in Children.—Williams has studied forty-two cases of definite gonococcal vulvovaginitis. Contamination from some member of the family was the most frequent source of gonococcus infection in female children, although in the majority of cases no etiologic history could be obtained. Smears from the cervical canal were positive for the gonococcus in forty cases. There was no definite relation between the duration of the infection and the cervical involvement. Even in recent cases gonococci were found in the cervix. Gonococci were obtained from the urethra in nine cases, or 21 per cent, but never in children under 6 years of age. Mercurochrome (5 per cent) caused the organisms to disappear from the secretions more quickly than 2 per cent mercurochrome solution, 2 per cent mercurochrome ointment, or 40 per cent mild silver protein. Four weeks was the average time necessary to procure negative smears. Relapse occurred in approximately 23 per cent of the cases.

Vaginal Discharge Due to Trichomonas Vaginalis.—Greenhill has treated fifty-six patients infested with *Trichomonas vaginalis* by the green soap-methylene blue-glycerin-lactic acid method. All of these sought advice and treatment for a persistent, irritating or obnoxious vaginal discharge. The vagina is very thoroughly scrubbed with gauze saturated with tincture of green soap. The vulva is likewise scrubbed and the region around the anus. The soap is washed out with water and then the vagina is thoroughly dried. A tampon which is saturated with a methylene blue (methylthionine chloride-U. S. P.) solution is inserted through a speculum high up into the vaginal vault. A second dry tampon is inserted to prevent the escape of the solution onto the patient's clothes. The vulva is lightly painted with the methylene blue solution. The patient is instructed to remove the tampons in the evening before going to bed. Because the methylene blue solution stains everything and can hardly be removed, the patient is advised to undress completely before removing the tampons, which is preferably done while in a bathtub. After removal of the tampons a douche containing 0.5 per cent lactic acid is taken. The treatment outlined is repeated every second day for three or more times. The patient takes a lactic acid douche on the mornings between treatments but not on the mornings she is to receive a treatment. No douche is taken on the morning of a treatment because the amount of discharge is noted and hanging drop examinations are made. If the hanging drop on two successive visits fails to show *Trichomonas* further treatments with methylene blue are not given. However, the patient is advised to take a lactic acid douche daily for about two weeks. The formula for the methylene blue solution is as follows: Stock solution: methylene blue crystals, 1 ounce; distilled water, 10 ounces. Solution ready for use: stock solution, 25 cc.; glycerin, 64 cc.; distilled water sufficient to make 1,000 cc.

Etiology of Chorea Gravidarum.—Campbell is of the opinion that all cases of chorea gravidarum are on an infectious basis and that accompanying lesions present in the endocardium and joints are of the same origin. The pathologic changes consist of an inflammatory process located in the cerebrum, the most marked changes being in the basal ganglions. Conservative treatment is sufficient for the mild and moderately severe cases, but the interruption of pregnancy must be resorted to in the extremely severe forms. Cesarean section may be performed when the child is at or near full term. The dangerous possibilities of chorea gravidarum, both fetal and maternal, should be realized by all practitioners who do obstetric work. Proper prenatal service with special reference to the removal of all foci of infection whenever practicable and with particular attention to the management of the neurotic patient from the standpoint of rest, both mental and physical, should reduce the incidence and severity of chorea gravidarum.

Bacillus Pyocyaneus Bacteremia of Placental Origin.—Soifer reports what he believes to be the first case recorded of a transient *Bacillus pyocyaneus* bacteremia of placental origin.

American J. Ophthalmology, Chicago

11: 947-1028 (Dec.) 1928

Visual Acuity Within Area Centralis and Its Relation to Eye Movements and Fixation. F. W. Weymouth and Others, Stanford University, Calif.—p. 947.
Frequency of Claude Bernard-Horner Syndrome: Sixteen Cases. H. W. Scarlett, Philadelphia.—p. 961.
Application of Bar-Reader to Campimetry, Stereocampimetry and Other Purposes. M. Davidson, New York.—p. 966.
Orbital Teratoma Removed Through Krönlein Incision: Diagnosis of Orbital Tumors. W. B. Weidler, New York.—p. 971.
Light Transmission by Colored Spectacle Lenses in Visible Spectrum. L. D. Redway, New York.—p. 973.
Theories of Accommodation. M. U. Troncoso, New York.—p. 976.
Iris Prolapse from Corneal Ulcer: Treatment by Conjunctival Flap. R. A. Peterson, Nanking, China.—p. 979.
Card Proptometer. E. Jackson, Denver.—p. 981.
Ankyloblepharon. F. H. Rodin, San Francisco.—p. 981.
Clonus of Internal Rectus. J. J. Horton, Eagle Pass, Texas.—p. 982.
"Auto Goggles" to Hold Red Glass for Muscle Test. L. L. McCoy, Seattle.—p. 982.
Bifocals for Golfers. H. W. Champlin, Towanda, Pa.—p. 983.

American J. Public Health, New York

18: 1451-1566 (Dec.) 1928

Selling Health—Vital Duty. H. N. Bundesen, Chicago.—p. 1451.
Practical Points About Active Immunization Against Diphtheria and Scarlet Fever. W. H. Park and M. C. Schroder, New York.—p. 1455.
Industrial Fatigue. E. L. Fisk, New York.—p. 1465.
*Use of Ultraviolet Rays Transmitting Windows. W. H. Eddy, New York.—p. 1470.
*Longevity of Typhoid Bacilli in Cheddar Cheese: Following Outbreak of Typhoid Traced to Cheese. E. M. Wade and L. Shere, Minneapolis.—p. 1480.
Geographic Distribution of Deaths from Diphtheria. D. B. Armstrong and G. H. Van Buren, New York.—p. 1489.
Industrial Viewpoint of Phenol Waste Disposal Problem. F. F. Marquard, Clairton, Pa.—p. 1497.
Common Interest Problems of State Directors of Public Health Nursing. E. F. MacDougall, Indianapolis.—p. 1501.
Laboratory Diagnosis of Syphilis. M. Oglesby and H. J. Knapp, Cleveland.—p. 1519.

Ultraviolet Ray Transmitting Windows.—Eddy feels that these glasses are important inventions. It seems a pity to detract from their values and discourage their being perfected as aids to health by false claims or misdirected selling campaigns. Their purveyors will therefore do well to stress instructions as to where to install and how to use them rather than quantity sales, at least until the public is educated to their values and limitations.

Longevity of Typhoid Bacilli in Cheddar Cheese.—Reference is made by Wade and Shere to an epidemic of typhoid traced to Cheddar cheese made at a factory, one of whose contributing patrons was proved to be a typhoid carrier. The cheese in question had been made from milk which would not curdle satisfactorily. This would indicate an unusual bacterial flora resulting in a changed chemical condition. The

development of cases in the epidemic indicates that *B. typhosus* lived in the cheese approximately sixty-three days. Eighteen experimental lots of cheese made from milk infected with *B. typhosus* contained the organisms on the day of manufacture. The experimental data indicate that usually, in the ordinary course of ripening, *B. typhosus* cannot be recovered from Cheddar cheese after the eighth day. However, two of the eighteen cheeses harbored *B. typhosus* for thirty-four and thirty-six days, respectively. Since the two cheeses in which *B. typhosus* lived thirty-four and thirty-six days, respectively, were made from the same lot of milk, it is probable that the longevity of *B. typhosus* in Cheddar cheese is influenced by the bacterial flora of the milk. Two instances in the milk experiments gave comparable results and seem to substantiate the same probability. The experimental data indicate that the degree of acidity and the character of the acid present are important factors in the destruction of *B. typhosus* in cheese. However, a specific acidity will not uniformly result in the destruction of this organism to the same degree and also because the bacterial flora of the milk and the complex chemical constituents of cheese may counteract the effect of the acidity differently in different lots of cheese.

Annals of Internal Medicine, Ann Arbor, Mich.

2: 503-601 (Dec.) 1928

*Relationship of Operability and Hemoglobin Percentage in Carcinoma of Stomach. H. R. Hartman and T. W. Brockbank, Rochester, Minn. —p. 503.
Chronic Appendicitis from Viewpoint of Internist. H. W. Bettmann, Cincinnati.—p. 509.
Specific Prophylactic Measures in Varicella and Measles. J. V. Cooke, St. Louis.—p. 518.
*Etiology of Erysipelas. K. E. Birkhaug, Rochester, N. Y.—p. 524.
Relation of Organic Brain Disease to Epilepsy: Review of Literature. E. B. Block, Atlanta, Ga.—p. 531.
*Agranulocytic Angina with Thrombopenic Purpura. W. Allan, Charlotte, N. C.—p. 542.
*Undulant Fever in Connecticut: Three Cases. T. P. Murdock and W. E. Hall, Meriden, Conn.—p. 545.
Treatment of Acid Mouth. J. E. Rush and W. W. Zwick, Lexington, Ky.—p. 550.
*Constitutional Entity of Exophthalmic Goiter and So-Called Toxic Adenoma. A. S. Warthin, Ann Arbor, Mich.—p. 553.

Operability and Hemoglobin in Gastric Cancer.—Hartman and Brockbank endeavored to ascertain whether any correlation existed between the degree of anemia and operability in carcinoma of the stomach. They studied two groups of cases. The first group consisted of 150 cases of carcinoma of the stomach in which the hemoglobin reading was 40 per cent or less, exclusive of all cases in which there was a history of gross hemorrhage. The cases were divided into two subgroups; one of 100 cases, in which the lesion proved to be inoperable because of its size or situation, or because of metastasis, and fifty somewhat similar cases in which operation was considered advisable and resection was performed. The second group consisted of 411 cases observed in the same period, 271 inoperable cases and 140 operable cases of carcinoma of the stomach, not selected as to hemoglobin percentage. The mean hemoglobin in the operable cases in group 1 was 34 per cent, and in the inoperable, 32.5 per cent. In group 2, the mean hemoglobin, 65.3 per cent, of the operable cases was slightly higher than that of the inoperable cases, in which it was 62.6 per cent. The fact that in many operable cases the hemoglobin is below 40 per cent is significant enough in itself. It may be further concluded that hemoglobin below 40 per cent is not in itself sufficient reason for a surgeon not to explore in a case of carcinoma of the stomach, even though for apparently the same period the records of the Mayo Clinic show two cases of inoperable carcinoma of the stomach to one of operable, in which the hemoglobin was below 40 per cent.

Etiology of Erysipelas.—From the enormous literature that has accumulated on this subject alone, Birkhaug firmly believes that it conduces to precision and clearness to regard *Streptococcus erysipelatis* as the true agent of the infection.

Agranulocytic Angina with Thrombopenic Purpura.—In the case presented by Allan the clinical course, objective signs and blood conditions were all typical of agranulocytic angina, and, in addition, there was a much more severe thrombopenic purpura than had previously been reported. There was no history of exposure to toxic poisons.

Undulant Fever in Connecticut.—Undulant fever is probably more common in Connecticut than was heretofore thought. Three cases are reported by Murdock and Hall from Meriden, Conn. In all three cases the serum agglutinated *Alcaligines melitensis* in dilutions up to 1:300.

Constitutional Entity of Exophthalmic Goiter.—Warthin states that exophthalmic goiter, "toxic goiter," "hyperthyroidism" and "toxic adenoma" present always the pathologic picture of hyperplasia of the primitive lymph nodes of the thyroid, hyperplasia of the thymus and other anatomic stigmas of the thymic-lymphatic constitution. In addition, they present certain constitutional peculiarities of their own kind. Not all cases of thymicolymphatic constitution will present the exophthalmic goiter syndrome, although all cases of the latter group will possess the chief morphologic stigmas of this constitution. All forms of exophthalmic goiter symptoms represent the abnormal reactions of a primary pathologic constitutional anomaly. Exophthalmic goiter, "toxic goiter" and "toxic adenoma" are pathologic reactions potentially predetermined in the individual at birth by virtue of his constitutional anomaly. The development of the symptoms, so far as the thyroid is concerned, is only the expression of the abnormal reactions of this constitutional anomaly to the conditions of the life of the individual. Only those possessing this constitutional anomaly will ever develop the so-called hyperthyroid or thyreotoxic symptoms. The potentiality may, however, remain "latent" or quiescent during the whole or a large part of the potential individual's life. The clinical and pathologic stigmas of the potential exophthalmic goiter constitution may, however, be easily recognized in this individual. There can be no cure for the constitutional anomaly on which the development of "hyper" or "toxic" symptoms depend. These abnormal reactions may, and usually do, remain below the clinical horizon until called forth—in what way or by what mechanism is not yet fully understood. It is evident, however, that the thyroid gland is not the chief pathogenic factor in the various clinical syndromes usually referred to this organ; it is only an incidental complication or sequela, comparable to the participation in abnormal reactions of other organs and systems dependent on the constitutional anomaly. The most important histologic criterion of exophthalmic goiter, and of the allied clinical conditions of toxic adenoma and hyperthyroidism, as far as the thyroid itself is concerned, is the presence throughout this gland of hyperplastic primitive lymph nodes with germinal centers showing lymphoid exhaustion. Their presence determines the existence of the underlying constitutional anomaly. This potential exophthalmic goiter constitution may be recognized in the thyroid of very young children. To this constitution Warthin has preferred to apply the term "Graves' constitution." It is the underlying pathologic and clinical entity of exophthalmic goiter, toxic goiter and toxic adenoma.

California and Western Medicine, San Francisco

29: 361-432 (Dec.) 1928

*Late Traumatic Apoplexy: Three Cases with Operative Recovery. H. C. Naffziger and O. W. Jones, Jr., San Francisco.—p. 361.
Duodenitis. G. W. Nagel, Rochester, Minn.—p. 364.
European Urology. F. Hinman, San Francisco.—p. 367.
*Human Sexual Sterilization. S. H. Babington, Berkeley.—p. 369.
*Alkalosis: Its Importance in Certain Preoperative and Postoperative Lesions of Upper Gastro-Intestinal Tract: Case. E. E. Larson and D. S. Pulford, Woodland.—p. 373.
Toxic Goiter: Importance of Differential Diagnosis. A. B. Cooke, Los Angeles.—p. 378.
Roentgen Therapy in Dermatology. L. F. X. Wilhelm, Los Angeles. —p. 381.
Vascular Occlusion in Diphtheria. G. D. Lyman, San Francisco.—p. 385.
*Tuberculosis in Infants and Young Children. L. B. Dickey, San Francisco.—p. 388.
*Coccidioidal Granuloma. H. P. Jacobson, Los Angeles.—p. 392.
Safety Factors in Spinal Anesthesia. O. L. Schattenburg, Honolulu.—p. 397.
Carbon Monoxide Poisoning. R. T. Legge, Berkeley.—p. 401.
Anemias. R. Pollock, San Diego.—p. 403.
Lure of Medical History: William Harvey: I. Life of Author of De Motu Cordis. F. H. Rodin, San Francisco.—p. 406.
Tampon Treatment of Sinus Disease in Children. R. E. Ashley and A. G. Rawlins, San Francisco.—p. 408.
Erosio Interdigitalis Blastomycetica: Case. G. F. Koetter, Los Angeles. —p. 409.
*Pigmented Nevus. M. S. King, Loma Linda.—p. 410.

Late Traumatic Epilepsy.—In each of the three cases reported by Naffziger and Jones there was a history of head

injury followed by a latent period, which in the first two cases was of short duration and in the third case somewhat longer. During the latent period there was a marked similarity of symptoms in all three cases. The pathologic changes found in each case were of the same type, being located in the right cerebral hemisphere, in approximately the same area and varying only in degree and extent. The authors contend that, given the history of head injury, slight or severe, in elderly individuals showing some possible vascular changes, followed by a short latent period in which the head symptoms may or may not be present and in which an intracerebral hemorrhage is found, it must be concluded that the trauma is in direct relation to the hemorrhage. In young persons having a long or short latent period, trauma must likewise be considered.

Sterilization of Human Female. — Sterilization of the female is done by Babington as follows: The salpinx is crushed in two places, with a pair of hemostats, one-fourth inch apart, as near the cornua of the uterus as possible. A ligature of chromic catgut is applied to each of the crushed points. The salpinx is severed between the ligatures. A purse-string suture is applied, just as in an appendectomy, around the stump at the cornua. While the suture is being tied, the stump is invaginated with the aid of a hemostat. This not only prevents the possibility of an ovum passing down into the uterus but also brings the serous layers of the broad ligament together, which is very important for prompt healing and for better security of closure of the end of the tube. The distal end of the tube is buried in the broad ligament with the aid of one or two sutures. By this means all raw surfaces are covered with serous membrane, and the tubes are prevented from sagging. No tissue is removed in operating according to this method.

Detection of Alkalosis.—Larson and Pulford call attention to a clinical syndrome, the degree of which may be measured by chemical studies of the blood. Early recognition of alkalosis depends on loss of upper gastro-intestinal fluids, oliguria, low blood pressure, fluid deficit and chemical conditions of the blood, namely, high carbon dioxide combining power, high blood urea and lowered plasma chlorides. Its recognition is paramount, so that a proper regimen is instituted before surgical measures are taken. Administration of sodium chloride, dextrose and water, preferably in hypertonic solutions, is specific for the toxemia. The mortality in these conditions can be lowered if the surgeon is ever on his guard for this clinical syndrome and applies the management prescribed before surgery is attempted.

Tuberculosis in Infants and Children.—One hundred and fifty-two infants under 1 year of age were tested by Dickey with a 0.1 mg. dose of Koch's old tuberculin, intracutaneously. Seven, or 4.6 per cent, reacted positively; 161 children tested between the ages of 1 and 2 gave twenty-two positive reactions, or 13.7 per cent; of 171 between the ages of 2 and 3, nineteen, or 11.1 per cent, were positive; while of 254 between 3 and 4, fifty-seven, or 22.4 per cent, reacted positively. These four groups made a total of 738 children under 4 years of age, 105 of whom were positive reactors to tuberculin, or an incidence of 14.2 per cent. Of 105 cases of tuberculous infection in children under 4 years, twenty-four were classified as active, twenty-nine as suspected and forty-six as healed; in six a classification was not possible because of incomplete records. Most of these 105 children have been followed for from three months to two and a half years. Nine have disappeared from observation. Of these only two were thought to have been acutely ill with tuberculous disease at the time of their disappearance. Seventeen of the twenty-four patients with active tuberculosis are known to be living, and three have disappeared from observation. Of the seventeen known to be living, nine are completely well and symptomless, three are ill at home with symptoms of tuberculosis, and five are in hospitals for tuberculous patients. Of the twenty-nine patients classed originally as having symptoms suggestive of tuberculosis, one is dead, two are ill with symptoms of tuberculosis and three have disappeared, while twenty-three are well. Of the forty-six cases classed as healed, one has been lost from observation; the other forty-five patients were well when last seen, and have never had signs or symptoms of active tuberculous disease other than the original positive tuberculin test. In the group of twenty-four active cases, there were definite histories of exposure in the home to tuberculosis in nine, or 37.5 per cent; in the twenty-nine suspected cases, there were nine, or 31 per cent, known contacts; in the group of forty-six cases of healed tuberculosis, ten patients, or about 21.8 per cent, were known to be contacts. For the total group of 105 there were twenty-nine known contacts, an incidence of 27.6 per cent.

Coccidioidal Granuloma.—Four additional cases of coccidioidal granuloma are reported by Jacobson, making a total of ninety-two cases recorded in the literature to date. An additional year of observation on the efficacy of colloidal copper in the treatment of this disease leads him to believe that this is the best remedy today for the treatment of systemic coccidioides. On the basis of clinical observation and close questioning of patients and of his own inability to transmit the disease in guinea-pigs through immediate and direct contact, or through contaminated food and air, Jacobson believes that there is an intermediary host, probably an insect, involved in the transmission of this infection.

Huge Pigmented Nevus.—King reports a case of a peculiar congenital skin anomaly. The skin over the affected area was very dark and roughened in appearance, slightly elevated above the surrounding areas, and covered with a dense heavy growth of black hair, giving the patient a distinctly animal-like appearance. The growth covered almost the entire upper surface of the back and the shoulders, extending about halfway up on the back of the neck and about halfway round the midline of the chest in front. It was very symmetrical in appearance and had a peculiar cut-away effect in front, resembling in appearance some sort of jacket or vest. It also extended a few inches down on the arms, giving it the appearance of short sleeves. The patient stated that he never perspired over this area. There were many smaller patches of a similar nature over the rest of the body and extremities. The patient was a firm believer in the popular idea of prenatal marking of the fetus. He stated that while he was a child (in utero) his mother had wanted a sealskin jacket, which was the latest thing in fashion at that time, and was saving up money to buy one. Some one broke into the house and stole the money she had hoarded, and she was unable to get the jacket. This was a source of keen disappointment to her, and both she and her son believe it to be the cause of this peculiar birthmarking.

Canadian M. Association Journal, Montreal

19: 649-758 (Dec.) 1928

Reflections of Anesthetist. W. B. Howell, Montreal.—p. 649.
Field of Neurosurgery. W. Penfield, Montreal.—p. 654.
*Ulcerative Colitis. P. H. T. Thorlakson, Winnipeg, Man.—p. 656.
Depilation with Thallium Acetate in Treatment of Ringworm of Scalp in Children. G. V. Bedford, Winnipeg, Man.—p. 660.
Pharmacologic and Toxicologic Aspects of Thallium. M. J. Ormerod, Winnipeg, Man.—p. 663.
Nephrosis in Children. G. L. Boyd, Toronto.—p. 665.
Antituberculosis Measures in Rural Districts. D. A. Stewart, Ninette, Man.—p. 669.
Inguinal Hernia and Its Relation to Compensation. W. W. Ruddick, Montreal.—p. 675.
Control of Uterine Hemorrhage by Roentgen Ray. A. S. Kirkland, St. John, N. B.—p. 679.
*Postoperative Vomiting: Control by Interstitial Injections. M. A. R. Young, Lamont, Alta.—p. 681.
*Case of Diabetes and Gout. I. M. Rabinowitch, Montreal.—p. 682.
Surgical Goiter. T. H. Lennie, Vancouver, B. C.—p. 687.
Dissemination of Broad Tapeworm by Wild Carnivora. T. Vergeer, Ann Arbor, Mich.—p. 692.
Meningococcal Septicemia or Spotted Fever: Case. W. D. Hay and P. H. Huyck, Kingston, Ont.—p. 695.
Coexisting Benign Esophageal and Pyloric Stenosis: Case. W. L. Graham and W. H. Hatfield, Vancouver, B. C.—p. 696.
Two Cases of Cancer of Lung. T. G. Heaton, Hamilton, Ont.—p. 693.
Anuria Due to Diffuse Infarction of Renal Cortex. W. de M. Scriver, Montreal.—p. 701.
Recent Trip of Canadian Tuberculosis Association Representatives. J. H. Elliott, Toronto.—p. 712.
Acute Conditions in Lower Abdomen of Female. W. W. Chipman, Montreal.—p. 714.

Ulcerative Colitis.—Thorlakson makes a simple cecostomy of inestimable value for purposes of irrigation. A soft catheter is purse-stringed into the cecum. In some severe cases continuous irrigation was instituted. An ordinary irrigating can, with a rectal drip attachment, is connected to the cecostomy tube and warm physiologic solution of sodium chloride is allowed to enter by a rapid-drop method. At the same time a small rectal tube is inserted and connected to a large vessel under

the bed. By this means the cecum and ascending colon are intermittently filled up with warm solution, which is then flushed through the remainder of the large bowel. By means of the irrigation a cleansing of the ulcerated surface is accomplished which prevents to a large degree the absorption of septic products. A transverse ileostomy (Brown's operation) is rarely necessary, but it finds its usefulness in selected cases. Indications for this procedure are: (1) repeated profuse colonic hemorrhages; (2) generalized polyposis, and (3) long standing cases in which the colon has been converted into a useless, fibrous tube. It is not indicated in the acute early cases, as these can be controlled, with few exceptions, by hot irrigations through a small cecostomy tube. In one of his cases, in which there were profuse repeated hemorrhages requiring transfusion, Thorlakson did a transverse ileostomy under local anesthesia, employing the principle advocated by Mikulicz in his operation on the sigmoid for carcinoma. The ileum was double-barreled from about 12 to 16 inches from the cecum along the antimesenteric surface for about 3 inches. This portion was returned to the abdomen and a rubber tube placed under the loop. Nine months later, when it was desired to reestablish the continuity of the intestinal tract, a crushing forceps was applied to this spur and within five days the patient was having normal bowel evacuations. The dietetic and medical management is important both during and following active treatment. A low residue diet of high caloric value is indicated. Cod liver oil and calcium lactate by mouth may be added. At present Thorlakson uses an autogenous serum obtained by injecting into animals the Flexner bacillus isolated from recent cases. Nothing conclusive can be stated at this time, but Thorlakson feels that serum therapy will eventually cure the disease.

Control of Postoperative Vomiting.—Young gives every patient who has undergone a major operation an interstitial injection of Ringer's solution with a 5 per cent solution of dextrose in equal proportions, and 30 cc. of a 1 per cent solution of procaine per liter of fluid given. The injection of from 1,000 to 1,500 cc. is made into the lateral aspects of the thighs. This treatment is said to diminish postoperative vomiting, lessen nausea, relieve the patient of the intense craving for water and reduce the incidence of postoperative distention, and it almost does away with the need of catheterization. In addition, it supplies the drained tissues with fluid, and makes up for that which has been lost during the operation.

Combination of Diabetes and Gout.—In the case of diabetes and gout reported by Rabinowitch, it was found that insulin precipitated the attacks of gout. Unfortunately, the diabetes was sufficiently severe to require insulin. Without the latter, and on a diet compatible with the normal requirements, it was not possible to keep the urine sugar-free and the blood sugar normal. Because of this, synthalin treatment was attempted. For a very short period the results were discouraging, in that cramps and diarrhea appeared. At that time, however, there was no evidence of liver injury. The van den Bergh test was negative and there was no excess of urobilinogen in the urine. For this reason, and also because of the patient's cooperation, it was considered advisable to continue the attempt. The results were successful and continue to be so. For more than fifteen months the urine has been kept sugar-free and the blood sugar practically normal without the use of insulin. A disturbing feature is the persistence of a high plasma cholesterol. Unlike insulin, synthalin has not had any effect on the metabolism of this lipoid. As a matter of fact, the cholesterol is now higher than when the patient was first admitted to the hospital. That the condition is an anomalous one is suggested from the fact that one other diabetic patient with gout, who has been receiving much larger doses of insulin, and over a much longer period of time, does not present the same complication.

Johns Hopkins Hospital Bulletin, Baltimore

43: 315-403 (Dec.) 1928

Studies in Neurology: I. Phylogenetic Continuity of Central Nervous System. S. Ingvar, Lund, Sweden.—p. 315.
Id.: II. Cerebellar Function. S. Ingvar, Lund, Sweden.—p. 338.
Pathogenesis of Argyll-Robertson Phenomenon. S. Ingvar, Lund, Sweden.—p. 363.
Sickle Cell Anemia: Clinical Aspects. H. Josephs, Baltimore.—p. 397.
Id.: Splenic Lesion. A. R. Rich, Baltimore.—p. 398.

Northwest Medicine, Seattle

27: 557-602 (Dec.) 1928

Present Status of Suprarenal Problem. C. A. Dragstedt, Chicago.—p. 557.
Pain from Urologic Standpoint. C. D. Donahue, Eugene, Ore.—p. 560.
Pain in Back. H. C. Blair, Portland, Ore.—p. 562.
Nephritis of Early Syphilis: Case. J. H. Labadie, Portland, Ore.—p. 564.
Prostatectomy: Perineal Versus Suprapubic Route. A. C. A. Gaul, Olympia, Wash.—p. 566.
Brain Abscess of Otitic Origin. F. A. Kiehle, Portland, Ore.—p. 571.
Problem of Ankylosed or Partially Ankylosed Joints. C. F. Eikenbary, Seattle.—p. 575.
What Shoes to Wear. J. Brugman, Seattle.—p. 577.
Peptic Ulcer: Treatment. W. E. Gatewood, Portland, Ore.—p. 580.
Myrtomel in Diabetes Mellitus: Results. B. Holcomb, Portland, Ore.—p. 586.
University Health Service as Educational Force for Scientific Medicine. F. N. Miller, Eugene, Ore.—p. 589.

Physical Therapeutics, Baltimore

46: 513-566 (Nov.) 1928

What Not To Do with High Frequency Currents (Diathermy). F. de Kraft, New York.—p. 513.
Are Electric Currents of Value in Treatment of Cardiovascular Disease? B. B. Grover, Colorado Springs.—p. 524.
Mechanical Vibration in Cardiovascular Conditions. M. L. H. A. Snow, New York.—p. 533.

South Carolina M. Association Journal, Greenville

24: 269-292 (Dec.) 1928

Secondary Anthrax of Eye. N. T. Clark, Spartanburg.—p. 271.
Indications for Cesarean Section. G. E. Thompson, Inman.—p. 272.
Resection of Obstructions at Vesical Orifice with Maximilian Stern Resectoscope. T. M. Davis, Greenville.—p. 274.
Ocular and Rhinologic Manifestations of Allergy. W. J. Bristow, Columbia.—p. 280.

Southwestern Medicine, Phoenix, Ariz.

12: 539-590 (Dec.) 1928

Surgical Problems Pertaining to Surgery of Lung and Chest Wall. F. P. Miller, El Paso, Texas.—p. 539.
Cautery Excision in Carcinoma Above Clavicle. J. F. Percy, Los Angeles.—p. 541.
Significance of Certain Eruptive Disorders of Skin: Toxic Erythemas, Purpura, Urticaria, Eczema and Psoriasis. A. J. Markley, Denver.—p. 546.
Superior Mesenteric Thrombosis. W. Smith, Los Angeles.—p. 549.
Some Functional Disturbances of Other Organs Referable to Gallbladder. C. Epler, Pueblo, Colo.—p. 555.
Epidemic Poliomyelitis: Cases. M. C. Fronske, Flagstaff, Ariz.—p. 560.
Tuberculosis Handicap. I. D. Loewy, Whipple, Ariz.—p. 562.
Utilization of Autoplastic Bone Grafts in Orthopedic and Plastic Surgery. P. Rigney, El Paso, Texas.—p. 564.

Texas State J. Medicine, Fort Worth

24: 519-598 (Dec.) 1928

Applied Anatomy in Treatment of Infections of Hand. H. O. Knight, Galveston.—p. 528.
Thrombosis of Central Retinal Vein: Case. F. H. Rosebrough, San Antonio.—p. 533.
Basal Cell Epithelioma of Osseous Structures. W. G. McDeed, Houston.—p. 537.
Lipiodol as Diagnostic Aid in Gynecology. E. W. Bertner, Houston.—p. 529.
*Injection of Iodized Oil in Uterus and Fallopian Tubes as Diagnostic Procedure. W. F. Pickett, Dallas.—p. 542.
Extra-Uterine Pregnancy: Analysis of Twenty-Eight Cases. L. W. Pollok, Temple.—p. 545.
Retroperitoneal Appendix: Seven Cases. A. B. Small, Dallas.—p. 550.
Hypersensitiveness. J. H. Black, Dallas.—p. 555.
Thymic Hyperplasia: Diagnosis and Treatment. C. M. White, Beaumont.—p. 559.
Myxedema. C. M. Grigsby, Dallas.—p. 562.
Clinical Value of Tests for Liver Insufficiency. J. E. Robinson, Temple.—p. 565.
Future County Health Officer. W. L. Baugh, Lubbock.—p. 566.
Comparison of Wassermann, Kahn and Meinicke Tests. A. H. Braden, Houston.—p. 569.
Society's Obligation to Its Children. H. N. Barnett, Austin.—p. 571.
Practical Preventive Measures in Children. T. D. McCrummen, Austin.—p. 572.
Conservation of Health and Life in Infancy and Childhood. A. S. Garrett, Weatherford.—p. 574.
Missouri Pacific Lines Texas Better Health Special. R. H. Bell, Houston.—p. 577.

Injection of Iodized Oil in Uterus and Tubes for Diagnostic Purposes.—In Pickett's experience the intrauterine injection of iodized oil is entirely safe and harmless. In all of the seventy-seven cases reported, the roentgen diagnosis was confirmed by operation. No manifestations of iodism have been observed.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 1077-1120 (Dec. 15) 1928

Acute Hemorrhagic Nephritis. H. L. Tidy.—p. 1077.
*Action of Vitamin D in Preventing Spread and Promoting Arrest of Caries in Children. M. Mellanby and C. L. Pattison.—p. 1079.
*Utility of Streptococcal Vaccines in Treatment of Puerperal Sepsis. R. R. Armstrong and W. Shaw.—p. 1082.
Breast Feeding. H. W. Pooler.—p. 1085.
*Relation Between Trauma and Tuberculosis: From Physician's Point of View. N. Tattersall.—p. 1088.
*Id.: From Point of View of Accident Insurance. O. May.—p. 1090.
*Unusual Case of Obstruction of Small Intestine. G. Millar.—p. 1091.
Treatment of Papilledema with Increased Intracranial Tension. G. Evans. —p. 1092.
Periostitis of Tibia Following Amebic Hepatitis. R. H. Hodges.—p. 1092.

Relation of Vitamin D to Caries.—In a group of twenty-one children, whose average age was about 5½ years, the addition of vitamin D in the form of irradiated ergosterol checked the initiation of new carious points, diminished the spread of old carious points, and arrested the infective process in many carious teeth. This investigation by Mellanby and Pattison corroborates those previously made, in which it was found that the carious process in the teeth of children could often be inhibited by increasing the intake of fat-soluble vitamins by the addition to the diet of cod liver oil, egg yolk and extra milk. The present work shows that vitamin D is a most powerful agent in these inhibitory processes.

Use of Streptococcal Vaccines in Treatment of Puerperal Sepsis.—Data given by Armstrong and Shaw stress the futility of the vaccine treatment of puerperal sepsis. In all 2,007 patients were delivered; eighty-one, or 4 per cent, became morbid, and of these, sixty-one, or 3 per cent, are recorded as clinically septic also. There were four cases of septicemia, one of which proved fatal. In addition, one fatal case of icterus gravis gravidarum and one of pneumococcal peritonitis occurred, making a total of three deaths in all. Sixty operations were performed. The total operative morbidity was eighteen, or 31 per cent, as compared with a gross morbidity rate of only 4 per cent over the whole series, or, exclusive of the operative morbidity, a net rate of 3.23 per cent. Operative intervention, therefore, increased the rate of sepsis tenfold. The forceps rate was only 2 per cent. The low incidence of patients requiring operation is attributed in part to conservative tradition and practice in the district. In the main it must be recognized to be due to careful antenatal supervision. Summarizing the position, it may be said that morbidity in the puerperium is in the main due to a single cause, *Streptococcus pyogenes;* the failure of vaccines, a specific means of treatment, is, therefore, the more disappointing. It appears that all but a few morbid patients recovered spontaneously. This being so, the conclusion follows that special remedies, such as vaccines, are of subsidiary importance in the prevention of sepsis as compared with conservative and aseptic midwifery. Puerperal sepsis, being a specific disease, must be recognized as a definite clinical process to be treated like any other infectious or contagious malady.

Relation Between Trauma and Tuberculosis.—Among 300 consecutive cases of definitely diagnosed pulmonary tuberculosis analyzed by Tattersall, injury was suggested as a cause in six cases, but there were four cases in which the evidence clearly linked up the onset of symptoms and the fact of injury. The question to be answered, says Tattersall, is whether the accident has (1) localized a tuberculous lesion at the site of injury, or (2) mobilized and activated an old tuberculous focus.

Id.—It is May's belief that the whole problem for the medical practitioner confronted with the duty of giving an opinion on the relation of trauma to ensuing tuberculosis is in his estimating the probabilities of a causal relation. If he is satisfied, from a review of the whole case, that the balance is definitely in favor of the view that, without the trauma, the ensuing tuberculous disease would not have developed when it did, then, and only then, is he justified in supporting a claim under the workmen's compensation act; if, on the other hand, he comes to the conclusion that the causal relation, while possible, is not definitely probable, then he should say so, and refuse to support the claim.

Obstruction of Small Intestine by Annular Carcinoma.—Millar's patient complained of periodic attacks of abdominal pain of two years' duration. The pain began to the left of the umbilicus and appeared to pass to the right side somewhat lower down. This pain was not associated with the taking of food, but on two occasions, about the time of his admission to the hospital, it was relieved by vomiting. On two or three occasions visible peristalsis was seen to begin in the left hypochondriac region and to travel in a ladder-like pattern to the right iliac region. The bowels were regular; there was no distention or rigidity, but some deep tenderness was present to the left of the umbilicus. The patient had a small epigastric hernia, and pressure on this with reduction seemed to give ease, and on one occasion completely abolished peristalsis. The hernia was cured by a minor operation, but this did not relieve his symptoms. An exploratory operation was now performed, and a tight annular stricture was found in the small intestine toward the lower end of the jejunum. Higher up there was a band, probably the result of old tuberculosis of the mesenteric glands, and this was divided. The area bearing the stricture and two nodules in the mesentery were excised, and an end-to-end anastomosis was done. The patient's recovery was uneventful. Section through the constriction showed an irregular glandular growth on the mucous surface infiltrating the muscle. It had the characteristics of a glandular carcinoma. One of the nodules excised proved to be a lymph node with carcinomatous metastases.

Edinburgh Medical Journal

35: 665-767 (Dec.) 1928

Medicine in Edinburgh. W. T. Ritchie.—p. 665.
*Consecutive Tests by Fractional Method of Gastric Analysis. I. E. M'Cracken.—p. 674.

Value of Fractional Method of Gastric Analysis.—Study of the comparative value of various gastric secretory and gastric motility tests, M'Cracken says, shows that of all the tests which are capable of practical application in this connection at the present time, the fractional method of gastric analysis is probably the most efficient method of observing either of these functions, and that this test occupies a unique position in that it is, at one and the same time, a test of both these functions. He has examined, by consecutive tests of a fractional nature, seventy-five persons presenting gastric symptoms. As a result of his experiences he is of the opinion that there are considerable variations in the results obtained from consecutive tests performed at short intervals of time in the same individual. These variations appear to be greater than is commonly supposed. There are many possible factors to account for these variations. It is probable that the average amount of variation is insufficient to affect seriously the diagnostic significance of the results obtained from this test. In certain cases more extreme variations do occur, and in these cases the interpretation of the results must be to some extent erroneous; it is evident that fractional analysis cannot be considered a reliable method of recording change—the result of treatment or other cause—in the gastric function of an individual.

Lancet, London

2: 1223-1276 (Dec. 15) 1928

Certain Visceral Sensations. E. P. Poulton.—p. 1223.
Sacro-Iliac Pain. W. Harris.—p. 1230.
*Treatment and Prevention of Nonobstructive Suppression of Urine. A. A. Osman.—p. 1233.
Action of Estrin on Isolated Uterus: Sensitized with Pituitary Extract. E. M. Scarborough.—p. 1236.
Treatment of Rickets with Irradiated Ergosterol and Ultraviolet Rays. E. F. Pringle.—p. 1237.
*Infection of Meninges by Bacillus Lactis-Aerogenes. A. Deane and G. Shera.—p. 1237.

Nonobstructive Suppression of Urine.—Twenty-four cases of severe, partial and complete suppression of urine are discussed by Osman. The method of treatment employed consists in giving by mouth (or by rectum when coma is present) a mixture of alkaline salts in increasing amounts until diuresis is obtained. It has been found that in cases of suppression and of nephritis with oliguria there is an associated acidosis. The plasma bicarbonate was markedly reduced in each of the nine

cases in which it was estimated in this series. When this is the case alkalis can be given in comparatively large amounts without danger, and the present series of cases suggests, in amounts sufficient to produce diuresis. Secretion of urine seems generally to begin when the bicarbonate has reached a normal level. Until this level is exceeded little danger is likely to ensue. The practice of giving alkalis in large amounts when the plasma bicarbonate is not known to be decreased is strongly condemned, as symptoms of alkalosis and tetany are likely to occur. A mixture containing 30 grains (2 Gm.) each of potassium citrate and sodium bicarbonate with some suitable flavoring agent such as syrup of orange, 40 minims in an ounce of water (2.5 cc. in 30 cc.), is given by mouth at hourly or two hourly intervals until secretion begins or until it begins to increase. At this point the previously acid urine is usually definitely alkaline. In cases of coma a 3 per cent solution of the mixture is given by rectum, or a drachm to the pint intravenously, and repeated until either diuresis is established or consciousness is regained, when oral administration is to be preferred. A light diet can be given throughout when desired, and no extra fluid need be given, but the minimum should be not less than 3 pints a day. The total quantity of fluid intake should be kept reasonably constant from day to day. The number of doses and the total amount of alkali required to start diuresis varies in each case, but it is absolutely essential that alkalis should be given continuously until diuresis begins. When the urinary output has reached from 10 to 15 ounces (300 to 450 cc.) and is seen to be still increasing, the alkalis must be reduced in amount, but must not be withdrawn. The total quantity of alkali given in the twenty-four hours may be reduced by one-third, but if this is followed by a decrease in urinary output, the former dose must be resumed immediately. By thus carefully manipulating the dose it is usually possible to maintain a satisfactory diuresis. The essential points in the procedure are to give alkalis in increasing amounts rapidly until diuresis commences, then to reduce the dose sufficiently to maintain the flow, but not to the extent of causing a secondary decrease in the secretion.

Bacillus Lactis-Aerogenes Infection.—The cause of death in the case cited by Deane and Shera was held to be septic meningitis due to infection via the blood stream by *Bacillus lactis-aerogenes* and secondary to suppurative cholecystitis.

Tubercle, London

10: 101-156 (Dec.) 1928

*Aspiration Bronchopneumonia of Secondarily Affected Lung in Adult Phthisis. J. F. Landreth and H. V. Morlock.—p. 101.
Causes of Breakdown in Health in Pulmonary Tuberculosis. F. R. Walters.—p. 105.
Recorded and Resident Death Rates from Tuberculosis in New York State in 1926. J. V. DePorte.—p. 111.

Aspiration Bronchopneumonia of Secondarily Affected Lung in Phthisis.—Landreth and Morlock conclude that the spread of pulmonary tuberculosis to the axillary region of the second lung is more common than is generally realized. The type of spread is a bronchopneumonia resulting from the aspiration of infected sputum, and therefore early pneumothorax is necessary in patients with cavities in whom there is much sputum. The prognosis in such cases, though grave, is not hopeless, and resolution of the pneumonic process may occur.

Archives des Maladies du Cœur, etc., Paris

21: 641-704 (Oct.) 1928

*Human Trypanosomiasis. Chagas.—p. 641.
Bone Marrow in Progressive Anemia. J. Sabrazès, P. Micheleau and G. Mandillon.—p. 656.

Heart Lesions in Human Trypanosomiasis.—Chagas reports the results of the microscopic examination made by Burle de Figueiredo and Margarinos Torres on the hearts of two patients who died from trypanosomiasis with the symptoms of cardiac decompensation. At necropsy neither valvular nor arteriosclerotic lesions of the heart were found but *Schizotrypanum cruzi* was present in the myocardium. Microscopic examination revealed the presence of multiple areas of fibrous tissue in the stage of cellular infiltration or scar formation in the ventricles, but only a diffuse cellular infiltration, similar to that found in interstitial myocarditis, in the auricles.

Presse Médicale, Paris

36: 1473-1488 (Nov. 21) 1928

*Magnesium in Cancer. P. Delbet.—p. 1473.

Halogen Salts of Magnesium in Cancer.—Delbet believes in the prophylactic action of the halogen salts of magnesium in cancer. He thinks that magnesium acts as a regulating factor in the evolution of epithelium. To prove his postulates he conducted two kinds of experiments on mice and guinea-pigs. Into the animals of the first group pieces of cancer tissue, taken from cancer patients, were transplanted; into the animals of the second group biliary calculi, taken during operations for biliary lithiasis, were introduced into the gallbladder. Half of the animals received bread with halogen salts of magnesium and daily subcutaneous injections of a solution of the salts of magnesium. The other half served as control animals. In all the mice the grafted tumors took, but the tumors in the animals that were treated with magnesium were much less voluminous than those in the control animals, and they did not recur when they were extirpated. In the control animals, on the contrary, recurrences appeared very soon and spread rapidly. For these reasons, Delbet has always saturated his cancer patients with magnesium salts before operation. In guinea-pigs the biliary calculi sown in the gallbladder produced in the control animals extensive pericholecystitis and exuberant epithelial proliferation, with a tendency to penetrate into the liver and to form perihepatic adhesions. The guinea-pigs that received magnesium salts had only insignificant lesions.

Clinica Pediatrica, Modena

10: 385-452, 1928

*Acute Leukemia in Children. G. Macciotta.—p. 385.
*Method for Early Diagnosis of Whooping Cough. E. Fanton.—p. 440.
Neutrophil-Lymphocyte Index (Krebs' Index) in Diseases of Children. G. De Simone.—p. 443.

Acute Leukemia in Children.—Macciotta emphasizes that it is not only the hematopoietic system that is involved in leukemic children; almost all the principal organs, particularly the liver, the spleen and the endocrine system, especially those glands that have a hematopoietic function in the embryonic stage of life, are affected. The changes in the bone marrow vary greatly in different subjects and are not strictly parallel to the intensity of the clinical manifestations. Following a primary phase of hyperactivity, in which the bone marrow assumes a dark red color, its aspect is usually, especially in the subacute types and in infants, reddish, reddish yellow, grayish yellow, gelatinous or even frankly pyoid. There is generally a notable reduction of fat, which is frequently replaced by a granular, amorphous substance. No marked reaction of the lymph glands was observed in his cases. The most notable manifestations were in the mediastinal and the mesenteric glands, but the enlargement was not excessive. Caseation processes were not observed ordinarily. The lesions of the thymus were among the most constant and the deepest, an indication of the importance of this organ in the pathogenic mechanism of leukemia. While other authors have usually found an increase in volume, the writer observed, on the contrary, a marked degeneration (weight only a few grams), with a grayish yellow appearance and a mucoid aspect of the tissues. The spleen was always enlarged, even in the initial phases, occupying in all the cases that the author saw a good share of the left half of the abdomen and descending to the iliac fossa. The weight may reach 700 or 800, occasionally 1,000, Gm. It is usually hard to the touch, and the capsule appears tense. In only one case was there evidence of perisplenitis. The liver is always much increased in volume, weight and consistency. The weight often exceeds 1,200 and even 1,500 Gm. The capsule is usually thickened, and on the cut surface are seen not infrequently small whitish spots of the size of the head of a pin, disseminated throughout the hepatic tissue. Three features predominate histologically: (1) return to a type of embryonic hematopoietic functioning characterized by the presence of immature cells of the white series and, in part, also of the red series; in the author's cases, the lymphocytic and hemocytoblastic cells were predominant; (2) marked changes in the hepatic cells through deformation and increase in volume as a result of swelling, and, above all, through a process of vacuolar degeneration very evident in all the cases studied by the author, and (3) increase

of connective tissue, especially marked in the perivascular areas, resulting frequently in a process of vascular obliteration through sclerosis. Likewise, the lesions of the kidney are constant and deep, owing not only to the leukocytic infiltration but also (and prevailingly) to the marked structural changes in the elements of the secretory system. The kidneys are sometimes much enlarged, but there was little or no enlargement in the author's cases. The color is usually pale. On the cut surface, homogeneous whitish gray spots and, in one case, also small spots of a hemorrhagic type were visible. In the past, little attention has been given to the possible modifications of the acinose and the endocrine tissues of the pancreas in the study of leukemia. In all the cases that came under the author's observation, he was able to establish a frequency (if not an importance) of changes comparable to that observed in the spleen and the liver. The typical changes in the suprarenal glands were characterized by a return to a phase of embryonic hematopoietic activity, with formation of areas in which undifferentiated cells and immature cells of both the white and the red series were noted. In the thyroid, a sclerotic process had usually reduced notably the glandular tissue. In the parathyroids a slight degree of sclerosis of the connective tissue was observed. The genital glands did not present any changes.

Hemoclastic Test for the Early Diagnosis of Whooping Cough.—Fanton ascertains the number of white blood corpuscles in the blood of a child (fasting). The determination must be precise and accurate, at least four different drops taken from the finger tip being examined and the results averaged. Immediately afterward, he injects into the child 1 cc. of therapeutic antipertussis vaccine. Half an hour later, he takes blood specimens from the same finger tip and determines the content. A diminution of 3,000 or more leukocytes is regarded as very strongly positive (+++); a diminution around 2,000, as strongly positive (++); around 1,000, as positive. A diminution between 600 and 800 is considered doubtful, and anything below 600 as negative. The researches were carried out on fourteen children with whooping cough. Two reactions were +++; nine were ++; two were +, and one was negative. In ten of the fourteen children he injected—to control the specificity of the reaction—equal quantities of an indifferent vaccine, whereupon the hemoclastic reaction was in every instance frankly negative. Similarly, using the same technic as before, he injected the antipertussis vaccine into four children who had never had whooping cough and into four others who had had the disease from one to three years previously. In seven of these eight children, the reaction was frankly negative. In one child who had never had the disease, the reaction was positive (+). The subject was a child of 15 months with marked signs of vagotonia.

Revista Médica Latino-Americana, Buenos Aires

14: 3197-2330 (Oct.) 1928. Partial Index

*Complete, Spontaneous Rupture of Uterus During Labor. D. A. Rojas. —p. 3216.
*Arteriovenous Aneurysm of Renal Vessels with Asystole. M. E. Varela. —p. 3244.
Diagnostic Value of Wanner's Sign. E. Casterán.—p. 3310.

Complete Spontaneous Rupture of Uterus During Labor.—A case of complete spontaneous rupture of the uterus during labor is described by Rojas. The patient, aged 28, gave a negative history, except for an appendectomy at the beginning of her pregnancy. It is believed that rupture of the uterus represents the result of a hyperdistention of the weakest part of the uterine wall, that is, the part on which the fetal head exerts pressure. In this case, however, the rupture was caused by a neglected shoulder presentation. An operation was performed with good results, and was followed by uneventful recovery of the patient.

Arteriovenous Aneurysm of Renal Vessels with Consequent Asystole.—In Varela's patient, a man, aged 27, cyanosis, edema, dyspnea, abdominal disturbances, enlargement of the liver and splenomegaly were present. Having demonstrated fremitus and a continuous murmur with a systolic reinforcement in the right lumbar region, the author made a diagnosis of arteriovenous aneurysm. Necropsy showed an arteriovenous aneurysm of the right renal artery. The heart, with normal valves and without signs of degeneration, was enlarged. The left kidney was 15 by 9 cm.; the right kidney was smaller. The author believes that a continuous murmur with systolic reinforcement is pathognomonic of arteriovenous aneurysm.

Deutsches Archiv für klinische Medizin, Leipzig

161: 257-380 (Nov.) 1928

Inhibitory Effect of Pressure on Vagus Nerve on Coronary Circulation. L. Braun and B. Samet.—p. 257.
Mechanism of Bloody Cutaneous Excretion. E. Jürgensen.—p. 271.
*Liver Diet and Increase of Blood Cholesterol. A. Adler and L. Schiff. —p. 282.
Hemolysis Caused by Industrial Poisoning. B. Kogan and A. Kusnetzowa.—p. 291.
Basal Metabolism in Leukemia. F. Strieck.—p. 307.
*Significance of Polypeptids in Diagnosis of Malignant Tumors. R. Schaefer.—p. 313.
*Influence of Insulin on Blood in Diabetes Mellitus. E. Zuckerstein and A. Streicher.—p. 323.
Iodine Treatment of Exophthalmic Goiter. A. Springborn and A. Gottschalk.—p. 338.
Effect of Ergotamine on Essential Arterial Hypertension. M. Georgopoulos.—p. 353.
*Tuberculosis or Brain Tumor. F. Külbs.—p. 362.

Liver Diet and Increase of Blood Cholesterol.—For testing the effect of the liver diet on the blood, Adler and Schiff used a liver extract that has the same effects as raw liver. In pernicious anemia the urobilinogen contents of the feces and of the blood decreased following a liver diet. The cholesterol content of the blood increased. In normal persons, the liver diet caused an increase of hemoglobin, erythrocytes, reticulocytes and eosinophils; the bilirubin content of the serum and of the feces increased. The cholesterol content of the blood serum increased. During the treatment the urine is often greenish yellow and slightly fluorescent.

Significance of Polypeptids in Diagnosis of Malignant Tumors.—Schaefer tried to find a reaction that is specific for all malignant tumors. His experiments deal with the quantitative detection of ferments that have the ability of splitting dipeptids. As a reagent he used glycyltryptophan, as ferment the glycyltryptophanase (Pfeiffer). He used blood dilutions varying from 1:2, 1:4, 1:8, 1:16, 1:32, 1:64, 1:128 to 1:256, employing physiologic solution of sodium chloride as a diluent. To 0.5 cc. of the solution he added 0.3 cc. of glycyltryptophan solution and 1 drop of toluene. This mixture was incubated at 38 C. for from eight to twenty-four hours. The solution was then acidulated with acetic acid and diluted with calcium chloride solution (percentage not stated). In positive cases the solution was rose; in negative cases is was yellow. Among fifty-one patients tested were thirty-seven with undoubted carcinoma. The fermentation values for those with carcinoma were: slightly increased in nine, strongly increased in twenty-three, and not increased in five. The reaction, therefore, is not specific, especially in patients with fever. It has value only in nonmalignant cases; in such cases the reaction was always negative.

Influence of Insulin on Blood in Diabetes Mellitus.—Zuckerstein and Streicher studied the effect of insulin on the blood of diabetic persons. They repeatedly examined the blood of thirty-three persons in different stages of the disease. The blood was taken in the morning on a fasting stomach. An increase of lymphocytes was observed in all cases. This lymphocytosis is in direct connection with the degree of the illness and is independent of the sugar and ketone contents of the blood. Injections of insulin intensify the lymphocytosis. Only in severe cases of diabetes is there a shifting to the left of the neutrophils. The number of thrombocytes is somewhat decreased, independent of the hyperglycemia and the ketone content of the blood, and is not changed by insulin. As a result of the physical and chemical changes in the blood caused by the hyperglycemia, the coagulation power of the blood is greatly decreased. The viscosity increases or decreases correspondingly with the increase or decrease of sugar in the blood. Decrease of sugar in the erythrocytes is followed by a decrease of sugar content in the blood. Insulin causes a decrease of the sugar content, and consequent thereto the volume of the erythrocytes is diminished, by about 10 to 15 per cent, which decreases the viscosity. Insulin causes a marked retardation of the sedimentation speed of the erythrocytes. Injections

of insulin also cause a decrease of the globulin and the cholesterol in the blood serum. In diabetes the resistance of the erythrocytes is decreased.

Tuberculosis or Brain Tumor.—Külbs describes five cases in which the symptoms indicated a circumscribed tuberculous inflammation of the meninges. The development of the symptom complex was so rapid that a diagnosis of an acute inflammatory process or even tumor seemed to be indicated. The further clinical course, however, made the diagnosis of tuberculosis certain.

Klinische Wochenschrift, Berlin

7: 2181-2228 (Nov. 11) 1928. Partial Index

*Significance of "Silent Infection." H. Reiter.—p. 2181.
Lipoid Metabolism in Starving Dogs. H. Wendt.—p. 2183.
*Relation Between Growth of Colon Bacilli in Small Intestine and Liver Therapy in Pernicious Anemia. N. Henning.—p. 2190.
Influence of Emotions on Flow of Bile. E. Wittkower.—p. 2193.
Primary and Secondary Hyperacidity of Stomach. H. Lawaczeck.—p. 2194.
Specific Capillary Reaction in Endocrine Insufficiency. G. dell'Acqua.—p. 2195.
Limits of Percutaneous Electrotherapy in Orthopedics and Possible Substitutes. E. Bettmann.—p. 2197.
Theory of Narcosis Based on Electromotive Action of Narcotics. R. Pentner.—p. 2199.
Changes in Kidney Following Administration of Insulin to Patient in Diabetic Coma. Dinkin and Metzger.—p. 2200.
Blood Catalase. E. Schilling.—p. 2202.
Source of Blood Ammonia. W. Mozolowski.—p. 2202.
Diabetic Coma in a Juvenile, Manifesting Itself as Peritonitis. W. Löwenberg and W. Joel.—p. 2203.

Significance of "Silent Infection."—Reiter distinguishes between typical, atypical and silent infections. He divides silent infections into two groups, silent infection with immunity and silent infection without immunity, or latent infection. Silent infection in the strict sense of the word is the infection held in check by an immunity to it already existing in the organism, whereas latent infection is an infection without immunity control, and hence likely to flare up at any moment.

Relation Between Growth of Colon Bacilli in Small Intestine and Liver Therapy in Pernicious Anemia.—Henning believes that liver extracts have a direct or an indirect action on colon bacilli. He describes a number of experiments which show the effects on colon bacilli of the extracts used in liver therapy. He found that: 1. There is no certainty about the possibility of removing poison from the colon bacillus filtrates with liver extracts if intracutaneous injections are used. 2. Liver extracts do not check the growth of hemolytic and anhemolytic colon bacilli. In highly concentrated extracts they grew luxuriantly. 3. After prolonged cultivation of *Bacterium coli-haemolyticum* in concentrated solutions of liver extract, there was no diminution in the hemolytic power of the bacilli. 4. There was no relation between the presence of colon bacilli in the upper digestive tract and the condition of the blood in pernicious anemia. Henning found that of nine cases of pernicious anemia successfully treated with liver, there was only one in which the colon bacilli disappeared from the stomach and the duodenum.

Medizinische Klinik, Berlin

24: 1817-1854 (Nov. 23) 1928. Partial Index

Diffuse Peritoneal Endometriosis. J. Koerner.—p. 1817.
*Functional Capacity of Tuberculous Patient. E. Brieger.—p. 1819.
*Echinococcosis of Peritoneal Cavity. B. Kipnis.—p. 1825.
Blood Groups in East Prussia. Brekenfeld.—p. 1826.
Bacillus Suipestifer Infection During Puerperium. O. Roth.—p. 1828.
*Gangrene Following Use of Oberst's Method of Anesthesia. G. Wolfsohn.—p. 1830.
Casuistics of Articular Syphilis. H. Lange.—p. 1830.
Differential Diagnostic Value of Sedimentation Speed of Erythrocytes in Cancer. F. Lickint.—p. 1831.
Problem of Malignant Tumors. L. Heidenhain.—p. 1831.

Functional Capacity of Tuberculous Patient.—Brieger points out that chronically ill persons, especially those with tuberculosis, are usually employed. Hence, the question arises as to what extent manual or intellectual work can be permitted, and how the functional capacity of the individual should be determined. Brieger gives a detailed description of the newest methods used for this purpose and reports his own observations in employing them. He comes to the conclusion that: 1. Manual labor does not cause typical changes. In spite of a diminished vital capacity the working power of the patient is little below normal. The decrease in his working power and the extension of the disease is about the same as in a weak or inexperienced worker. 2. The working capacity of the patient is best determined by a study of the pulse and the respiration. Tachycardia is characteristic of a patient not able to work. 3. The disturbances which cause the functional incapacity consist in a disproportion between the pulmonary ventilation and the circulation, and are probably caused by stasis in the pulmonary circulation. Exertion affects the heart more than it does the lungs.

Echinococcosis of Peritoneal Cavity.—The clinical record in the case reported by Kipnis extended over a period of more than seventeen years. Three operations were performed. The author points out that most surgeons who are familiar with cases of this kind distinguish between primary and secondary cases. A case is considered primary when the ova of the echinococcus pass from the intestine into the peritoneal cavity and there develop into hydatid cysts. In the secondary mode of origin an already existing cyst, usually in the liver, ruptures and the contents are emptied into the peritoneal cavity. To differentiate between these two forms is sometimes very difficult. In the case under observation several factors speak for a secondary mode of origin. As a plausible history of development the author gives the following: Either in childhood, or in the years 1904 or 1905, the patient was infected with *Taenia echinococcus* from contact with dogs. An echinococcus cyst developed and ruptured in the early stages of its development; the contents escaped into the peritoneal cavity, where they formed numerous cysts. Only in rare cases is it possible to make a diagnosis before operation. The author states that most surgeons are inclined to give an unfavorable prognosis. However, the favorable outcome of the case under consideration, and a similar one on record, contradict this. Kipnis also points out that the dangers of rupture of an echinococcus cyst have been overemphasized. The treatment is surgical. As a disinfectant he recommends a 5 per cent solution of formaldehyde followed by an application of tincture of iodine.

Monatsschrift für Kinderheilkunde, Leipzig

40: 289-384 (Oct.) 1928

Permeability of Blood-Brain Barrier. S. Rosenbaum.—p. 303.
*Value of Parathyroid Hormone for Organism. K. Waltner.—p. 317.
*Relation of Herpes Zoster to Varicella. H. Alterthum.—p. 330.
Acid-Base Metabolism in Intestinal Intoxication in Infants. M. Osann and S. Rosenbaum.—p. 344.
Preference of Raw to Sterilized Human Milk for Prematurely Born Children. W. Catel and M. Walltuch.—p. 354.
Erythrodermia Desquamativa in Infants. A. Szentléleky-Szász.—p. 362.

Value of Parathyroidal Hormone for Organism.—One of the causes Waltner gives for the rachitic disturbances in calcification is the hypertrophy or increased function of the parathyroid glands. Increased function of the parathyroid glands in rickets mobilizes calcium from the bones or hinders the normal deposit of lime. With a marked decrease in the function of the parathyroids and a positive calcium balance, disturbances of the osseous system still occur. Experiments show that excess as well as deficiency of parathyroid hormone causes a change in the osseous system. The presence of a certain amount of parathyroid hormone is necessary for a normal development of the osseous system. Extirpation of the parathyroid glands naturally means absence of parathyroid hormone, and the blood cannot keep enough of the calcium absorbed in the intestine, but deposits it in the soft tissue. Animals without parathyroid glands develop osteoporosis. When parathyroid hormone is present in excess, an increased consumption of calcium is the consequence. The calcium is partly taken from the osseous system. It is evident that an excess of parathyroid hormone has the same effect as a lack of the hormone. This is not an isolated phenomenon: A corresponding effect on the production of glycogen is observed with insulin.

Herpes Zoster Varicellosis.—Of thirty-six cases of herpes zoster reported on by Alterthum, twenty-three were associated with varicella. The incidence of herpes zoster varicellosis was not dependent on the frequency of varicella but showed a

remarkable increase in certain years. Seven times Alterthum observed zoster after an injection of arsenic; six of these patients became ill with varicella. This shows that arsenic zoster, too, may arise from varicellosis. Recovery from varicella does not, however, confer immunity to herpes zoster, or vice versa. As a prophylactic measure against varicella, patients with herpes zoster should be isolated at once.

Wiener klinische Wochenschrift, Vienna

41: 1577-1608 (Nov. 15) 1928

Physics and Clinical Study of Heart Sounds. S. Bondi.—p. 1577. C'td.
*Effect of Irradiation of Spleen on Reticulo-Endothelial System. F. Schürer.—p. 1581.
Diagnosis of Bronchial Carcinoma. H. Mayrhofer.—p. 1586.
Study of Personality. H. D. von Witzleben.—p. 1590.
Cause and Treatment of Goiter. B. Breitner.—p. 1592.
Therapy of Suppurative Tonsillitis and Complications. E. Glas.—p. 1593.

Effect of Irradiation of Spleen on Reticulo-Endothelial System.—Schürer studied the effect of small dosage roentgen irradiation of the spleen on the reticulo-endothelial system. He proceeded as follows: At different intervals following the irradiation of the spleen, the animals received an intravenous injection of 2 cc. of a 1 per cent congo red solution. Four and sixty minutes later specimens of blood were withdrawn. The specimens were centrifugated, and the resulting serum was diluted three times with water. In normal animals from 74 to 82 per cent of the congo red could still be demonstrated in the serum after four minutes, and from 14 to 16 per cent after sixty minutes. Irradiation of the spleen with 2 Holzknecht unit doses blocked the reticulo-endothelial system completely for about four hours. About six hours after the irradiation the storage power of the reticulo-endothelial system was greater than normal, reaching its optimum about eight hours after irradiation. About forty-eight hours later, its storage power was again normal.

Zeitschrift für Tuberkulose, Leipzig

52: 177-272 (Oct.) 1928

Spontaneous Pneumothorax. W. Zinn and W. Siebert.—p. 177.
Experiences with "Sanocrysin." E. Warlimont.—p. 188.
*Forced Alimentation and Insulin in Treatment of Tuberculosis. H. G. Zelter.—p. 191.
*Blood Cholesterol and Resistance in Pulmonary Tuberculosis. V. Hinze.—p. 199.
Pulmonary Lymphogranulomatosis. A. Bernstein.—p. 202.
*Value of Costa Reaction as Proof of Active Tuberculosis. M. Trojáan and F. Pongor.—p. 209.

Forced Alimentation and Insulin in Treatment of Tuberculosis.—Zelter reports his experiences with forced alimentation and insulin in the treatment of ten cases of pulmonary tuberculosis. The duration of the treatment was from three to four weeks. On the first day, 5 units of insulin was given, on the second day, two doses of 5 units each were given, and on the third day, 20 units was injected in two doses. Thereafter the doses were increased by 10 units daily up to a maximum of 60 units. The results proved that insulin is a valuable adjunct to the forced feeding of undernourished, tuberculous patients. It influences the entire metabolism. The patient's weight increases. The blood sugar curve is lowered slightly, which shows that the carbohydrates are used more effectively. Increased water retention and serious complications were not observed.

Blood Cholesterol and Resistance in Pulmonary Tuberculosis.—Hinze's examination of sixty-nine patients with pulmonary tuberculosis showed that in the acute form of the disease the blood cholesterol is always low. Applying the Mantoux test, he found that when the prognosis seemed favorable, the reaction was strongly positive, while in cases in which the prognosis seemed to be unfavorable the reaction was negative. His tests were made on patients in the first and second stages of the disease, because in these cases the blood cholesterol indicates the prognosis. He concludes that the greater the cholesterol content of the blood, the greater the resistance of the patient to tuberculosis.

Diagnostic Value of Costa Reaction in Active Tuberculosis.—Trojáan and Pongor mention several laboratory methods for the diagnosis of tuberculosis but prefer Costa's method because it can be completed in twenty minutes, whereas other laboratory methods require several hours. Of special advantage is the fact that only three drops of blood, taken from the finger, are required for the test. For this reason it is particularly suitable for the examination of children. Its simplicity and the short time required for its application make it also suitable for private practice. The authors report their results in 800 cases. On physical examination tuberculosis was found to be active in 352 cases. Of these, 319 gave a positive Costa reaction. Of 282 patients with cavities, 259 gave a positive reaction. In almost all cases of active tuberculosis the reaction was positive. In 199 patients with positive sputum, the Costa reaction was strongly positive 189 times. In 448 inactive cases, the Costa reaction was negative 398 times. Among the fifty inactive cases showing a positive reaction there were many in which other organs showed considerable involvement.

Zentralblatt für Chirurgie, Leipzig

55: 2945-3008 (Nov. 24) 1928

Symmetrical Gangrene in Infectious Diseases. P. Esau.—p. 2947.
*Operations for Asthma: Sympathectomy and Vagus Resection. R. Göbell.—p. 2951.
Operation for Inguinal Hernia of Large Bowel. S. Perpina.—p. 2952.
False Duodenal Diverticulum Formed by Fundus of Gallbladder Extending into Lumen of Bowel. W. Korchow.—p. 2955.
*Significance of Fahraeus Reaction (Erythrocyte Sedimentation) in Echinococcus Diseases. G. Raith.—p. 2958.
New Tongs for Extension Treatment of Fractures. L. Duschl.—p. 2959.
Unrecognized Foreign Bodies Retained in Tissues. P. Esau.—p. 2960.

Sympathectomy and Vagus Resection in Asthma.—Göbell reports results from these two operations done in ninety-eight cases of asthma at least five years ago—which he feels is the time that must elapse before a final result can be estimated. Unilateral sympathectomy and right sided vagus resection alone do not yield permanent results. The two operations together are followed by 41 per cent of cures; bilateral sympathectomy gives 42 per cent of cures and 30 per cent of improvement; double sympathectomy and vagus resection give 42.9 per cent of cures and 18 per cent improvement.

Diagnostic Value of Erythrocyte Sedimentation Rate in Echinococcus Diseases.—Raith regards this test as of much value in echinococcus disease, especially as a means of determining, after operation, whether the disease has been eradicated completely or whether some foci remain. Before operation the rate is invariably increased from twenty to sixty minutes. After operation it falls. Compared with the Casoni test, the sedimentation rate is much more reliable; in fact, the author found the Casoni reaction positive after operation in spite of the removal of all foci of the disease.

55: 3009-3072 (Dec. 1) 1928

Avertin Anesthesia. H. Kohler.—p. 3011.
Late Results of Arthrodesis of Talocrural Joint. N. A. Gurewitsch.—p. 3014.
*Appendicitis and Trauma. J. Lévai.—p. 3019.
Healing of Operation Wounds with Hallux Valgus. M. Herz.—p. 3021.
New Stomach Clamp. R. Bachmann.—p. 3022.

Trauma as a Cause of Appendicitis.—Lévai reviewed the histories in 1,054 cases of appendicitis and found trauma mentioned as a cause nine times. On further investigation of these cases, he unhesitatingly disregarded the possibility of any etiologic connection between the trauma and the disease. He is convinced that with a normally situated, freely movable healthy appendix, trauma never leads to inflammation. If the appendix is diseased, kinked or embedded in adhesions, trauma may make matters worse.

Zentralblatt für Gynäkologie, Leipzig

52: 2737-2800 (Oct. 27) 1928

Cause of Noncoagulation of Menstrual Blood. M. von Falkenhausen and A. Pyrgialis.—p. 2738.
Origin and Nature of Ovarian Lipoids. E. Preissecker.—p. 2740.
Fetal Arrhythmia (Extrasystole). C. Holtermann.—p. 2743.
Case of Prolapse of Normal Placenta. R. Kobes.—p. 2747.
Zangemeister's Drainage Treatment in Postabortal Sepsis. E. Krieger.—p. 2751.
Severe Hemorrhage Following Vaginal Tear. E. Fischer.—p. 2754.
*Influence of Gymnastics on Menstruation. E. Schlesinger.—p. 2758.
*Treatment of Uterine Myoma. A. Mandelstamm.—p. 2760.

Influence of Gymnastics on Menstruation.—Schlesinger inquired of fifty-five women who were taking gymnastics regularly what influence the exercise had on menstruation. Thirty-

nine women did not observe any special influence. Increase of menstruation as to the amount of blood discharged and the duration of menstruation was mentioned in eight cases; a decrease as to the amount and time was noted also in eight cases. All women agreed that gymnastics had a very good influence on the general state of health.

Treatment of Uterine Myoma.—Mandelstamm says that roentgen therapy and the surgical treatment of uterine myoma are not competing but complementary methods. That is why it is impossible to make a direct comparison of the result from both methods. The younger the patient, the more advisable is surgical treatment, since the subsequent phenomena of roentgenologic treatment often include abolition of the genital functions. The selection of the surgical method for the removal of uterine myoma is dependent on the individual case. The percentage of mortality, including the postoperative mortality, is the same in each method.

52: 2801-2864 (Nov. 3) 1928

Importance of Economic Conditions in Etiology of Abortion. W. Liepmann.—p. 2822.
Leukoplakia of Vaginal Portion of Cervix. H. Hinselmann.—p. 2828.
*Traumatic Puerperal Paralysis in the Mother. H. Schulz.—p. 2832.
*Ovarian and Interstitial Pregnancies. F. Federlin.—p. 2834.
Scipiades' Operation for Prolapse and Anteflexion of Uterus. E. Scipiades.—p. 2838.
Histologic Changes of Fetal Membranes in Cases in Which They Rupture Anomalously. S. Szenteh.—p. 2842.
*Simplification of Grossich's Method for Painting Skin with Iodine. J. Rosenblatt.—p. 2848.

Traumatic Puerperal Paralysis in the Mother.—Schulz states that cases of puerperal paralysis in the mother are not uncommon. In numerous cases in which pregnant women complain of pains in the region of the sciatic nerve before or during labor, the cause is to be found in an injury of the nerve plexus in the pelvis. This injury is usually produced when the pelvis is very narrow in proportion to the size of the head of the child. In these cases the intensity as well as the duration of the pressure of the head on the nerve plexus, which lies almost free on the rim of the pelvis, is very great. This injury usually occurs in forceps deliveries. Direct pressure from a blade of the forceps or contusion through rotary movements are usually responsible for the lesion. However, it is not clear whether the forceps produce this effect directly or only indirectly by increasing the already existing pressure. When forceps are used, neuralgia in the lower extremities should receive special consideration, since it is an indication of a threatened injury to the sciatic nerve.

Ovarian and Interstitial Pregnancies.—Federlin gives a detailed description of one case of ovarian pregnancy and one case of interstitial pregnancy. In the case of ovarian pregnancy, the patient underwent an operation for an ovarian tumor. Even after the tumor was removed, the diagnosis was not clear until the tumor was opened; then a small but well developed embryo was found. It is probable that many supposedly ovarian tumors are in reality ovarian pregnancies. In the case of interstitial pregnancy the uterus was found empty and seemingly had no connection with the ovum, which was found in the tissues of the wall of the uterus. This case is noteworthy because of the long duration of the pregnancy; it lasted for more than a year, and was uneventful up to the eighth month, at which time the fetus apparently died.

Simplification of Grossich's Method for Iodizing Skin in Gynecologic Cases.—Rosenblatt recommends the use of a spray for iodizing the skin in the preparation of patients for operation. He emphasizes the fact that with this method only one-fifth as much iodine is required as when it is applied on gauze. It also prevents irritation of the skin because, when gauze is used, too much iodine is applied sometimes and an inflammation is produced. In gynecologic cases the use of the spray is preferable because it enables one to iodize the interior of the cervix.

Klinicheskaya Meditsina, Moscow

6: 1319-1381 (Oct.) 1928. Partial Index

Roentgen Rays and Vegetative Nervous System. O. David.—p. 1319.
Blood *ph* During Treatment of Peptic Ulcers. B. P. Koushelevsky.—p. 1329.
*Vegetative Nervous System and Habitual Constipation. V. Mihelson.—p. 1333.
*Atropine Treatment of Peptic Ulcer. V. Ivanov.—p. 1340.
*Protein Therapy of Peptic Ulcer and of Anthrax. F. K. Permiakov.—p. 1354.
Clinical Physiology of Stomach. V. I. Petrov.—p. 1257.
Treatment of Peptic Ulcer at Health Resorts. I. F. Lorie.—p. 1368.
Distomatosis in Man: Case. G. Baisheva.—p. 1374.

Significance of Vegetative Nervous System in Etiology and Treatment of Habitual Constipation.—In order to determine the part played by the vegetative nervous system in the production and in the treatment of habitual constipation, Mihelson treated fifty-five patients with atropine, pilocarpine, epinephrine or solution of pituitary, or all of them, injected subcutaneously. On the basis of the action of these drugs, he proposes the following classification of habitual constipation: constipation due to (1) atony of the vagomuscular system (pilocarpine); (2) hypertony of the vagomuscular system (atropine); (3) atony of sympathicomuscular system (epinephrine); (4) mixed types (atropine, pilocarpine, epinephrine); (5) atony of the muscular system (solution of pituitary).

Atropine Treatment of Peptic Ulcer.—On the basis of personal experience in the treatment of forty-six cases of gastric and duodenal ulcers and twenty-eight similar cases in the clinic of Professor Pletnev, Ivanov recommends the subcutaneous administration of atropine in doses of from 0.5 to 1 cc. of a 1:1,000 solution, twice daily, over a period of from one to six weeks, to all patients refractory to the routine treatment by alkalis and diet before submitting them to any surgical intervention. In all cases the pains and occult hemorrhages disappeared promptly, not to return for years. Ivanov believes that the atropine treatment is not only symptomatic, but also curative. Atropine undoubtedly has both analgesic and homostatic action and by inhibiting the gastric and duodenal motility and secretion, and eliminating the spasm, it regulates and reestablishes the impaired functions of the diseased mucosa and in this way creates favorable conditions for the healing of the ulcer.

Protein Therapy of Peptic Ulcer.—On the basis of his experience with the use of intramuscular injections of from 0.5 to 3 cc. of boiled milk in the protein treatment of gastric and duodenal ulcers in the clinic of Professor Zimhitsky, Permiakov concludes that this form of treatment is more effective in duodenal ulcers: all his new and old patients with this condition were much improved, if not completely healed. In new cases of gastric ulcers, on the contrary, the condition was only ameliorated; in no case was complete cure observed.

Pediatria, Moscow

12: 1-112, 1928

Variations in Children's Constitution Under Influence of Climate of Eupatoria. P. S. Medovikova.—p. 3.
*Severe Forms of Scarlet Fever. Z. I. Edelman.—p. 14.
Scarlet Fever Croup. V. N. Kartasheva.—p. 29.
*Congenital Athyreosis; Case. N. M. Nikolaev and I. V. Zimbler.—p. 37.
Gonorrhea in Children. V. A. Vlassova.—p. 55.

Severe Forms of Scarlet Fever.—Edelman holds that there are two factors for the classification of severe forms of scarlet fever: involvement of the neurovascular apparatus and involvement of the cervical lymph glands and the throat. The grave forms of scarlet fever are the ones in which the endocrine vegetative apparatus is affected or in which necrotic angina with phlegmon or periadenitis is present. On the basis of symptoms, the disease is divided into three forms: the toxic, the septic and the mixed. In the toxic type, disease of the sympathetic nervous system stands out and in rapidly progressing fatal cases paralysis increases the danger. Clinical data are supported by functional tests of the vegetative nervous system and the histologic analysis of the vegetative apparatus. The symptom complex of septic scarlet fever is marked by destructive necrotic diseases of the throat, nasopharynx and cervical glands and by an early septicemia. Adenophlegmon and early septicemia give the worst prognosis. The frequency of the more usual complications is as follows: (1) disease of cervical lymphatic apparatus, (2) angina, (3) pneumonia, (4) nephritis. In spite of the frequent development of cardiovascular diseases, myocarditis and endocarditis are rare. The blood picture, especially Sondern's line of resistance, has considerable prognostic value. The septic type has the highest mortality.

Congenital Athyreosis.—Nikolaev and Zimbler describe a case of agenesis of the thyroid in a child, aged 3 months.

The history of the patient showed familial myxedema. The athyreosis appeared in the first month of the child's life. The endocrine glands that control the growth and the development of the organism in the early period of life were not much affected by the absence of the thyroid as the child was noticeably growing. The blood phosporus was decreased to 3.7 mg. per hundred cubic centimeters of blood. The calcium had reached the upper limits of normal. Absence of free hydrochloric acid was not found after ingestion of water. Death occurred unexpectedly from infection and the constitutional deficiency of the organism.

Nederlandsch Tijdschrift v. Geneeskunde, Haarlem

72: 5561-5664 (Nov. 10) 1928

*Treatment of Panaritium and Phlegmon. H. J. Laméris.—p. 5562.
Early Attempts to Formulate Vitamin Theory. C. Eijkman.—p. 5571.
Cholera Epidemic in Batavia in 1927. P. Peverelli.—p. 5579.
Biologic Basis for Neurology and Psychiatry. C. T. van Valkenburg.—p. 5585.
Degeneration Psychoses. E. A. D. E. Carp and A. H. Fortanier.—p. 5596.
Case of Extremely High Blood Pressure with Psychotic Phenomena. J. W. Schotman.—p. 5606.

Treatment of Panaritium and Phlegmon.—When signs of acute infection, beginning phlegmon, appear in the finger, the patient should be put to bed, and the arm should be elevated and a Priessnitz bandage applied to it. Solution of boric acid is preferable to plain water for moistening the bandage. For opening the panaritium, Laméris advises general anesthesia; he gives four reasons against using local anesthesia: 1. Infiltration of the infected tissue is extremely painful. 2. In the inflamed condition of the finger, it is not possible to judge the anatomic relations accurately with the eye. 3. There is danger of driving the infecting organisms into the surrounding tissues. 4. It is unwise to inflict further toxic injury on tissue already suffering from the toxins of the bacteria.

72: 5665-5760 (Nov. 17) 1928

Moral Help in Gynecologic Treatment. M. L. Muller.—p. 5666.
*Treatment of Pylorospasm in Infants. A. van Westrienen.—p. 5677.
*Tar Experiments on Mice Treated with Trypan Blue. G. A. Kreuzwendedich von dem Borne.—p. 5689.
Counting Blood Platelets in Medical Practice. A. Einthoven-Schuil.—p. 5697.

Treatment of Pylorospasm in Infants.—The results of treatment of pylorospasm in infants in the children's hospital of Rotterdam from 1920 to 1928 are reported by van Westrienen. Twenty-eight children were treated internally with three deaths; forty-two were treated surgically, with two deaths. Seventeen of the infants operated on weighed less than 3,000 Gm. each; one of these infants, aged 92 days, had lost 80 Gm. during the fourteen days of internal treatment that preceded operation. The length of stay in the hospital for children given internal treatment averaged forty-five and six-tenths days, while that for children operated on averaged thirty-four and six-tenths days (twenty-six and one-tenth days after operation). The greater rapidity of recovery is of importance, the author points out, from the point of view of secondary infection.

Tar Experiments on Mice Treated with Trypan Blue.—Kreuzwendedich von dem Borne found that tumors could not be produced by repeated applications of tar to the skin of the back in mice previously injected with trypan blue. The skin became markedly atrophic; the corium, thickened and hyaline. The greater number of the mice succumbed to the toxic action of the tar and the trypan blue after five or six applications of tar. One mouse, however, survived twenty-three applications; another, twenty-eight, and a third, thirty.

Acta Chirurgica Scandinavica, Stockholm

64: 187-373 (Nov. 22) 1928

*Treatment of Fracture Dislocations of Shoulder Joint. N. Silfverskiöld.—p. 227. In English.
*Cases: Krogius' Operation; Tenoplasty; Arthrodesis. N. Silfverskiöld.—p. 294.
*Injection Treatment of Hemorrhoids: 100 Cases. V. Meisen.—p. 311. In English.
Etiology of Ulcer of Greater Curvature of Stomach. V. David.—p. 329.
Ulcer of Stomach: Bayliss-Starling's Law. V. Mandler.—p. 346.
Four Cases of Liver Abscess Consecutive to Acute Appendicitis. S. Lindqvist.—p. 353.
Accident: Transfusion of Leukemic Blood. K. Gramén.—p. 369. In English.

Treatment of Fracture Dislocation of Shoulder Joint.—Silfverskiöld discusses dislocation of the head of the humerus complicated by a displaced fracture of the upper end of the bone. A survey is given of the literature to date and sixteen new cases are described. In thirteen cases reduction by open operation was undertaken, nine of which on reexamination showed a very good or good functional result. In six cases in which the displaced head fragment had lost all connection with capsule or periosteum, bony union occurred after open reduction in four, normal function being on the whole established. The author is of the opinion that contraindications to open operation are the general contraindications to any operation (e. g., markedly impaired general condition); in the presence of such contraindications manipulative reduction may in some cases be tried under anesthesia; in other cases manipulative attempts at reduction should be avoided. Reduction by open operation is to be considered the routine method and should be done as soon as possible after the injury; primary resection is indicated only in (*a*) exceedingly severe comminuted fractures, especially of the head, and (*b*) when the general state of the patient seems to permit only of a relatively brief open operation. After resection of the head arthrodesis (and perhaps arthroplasty) may in some cases give better functional results than a mere adaptation of the upper end of the shaft against the socket and should therefore be considered; in reduction by open operation loose bone splinters should also be fitted in, the large fragments being carefully adapted or perhaps wedged in; flaps of capsule or periosteum should be put straight or, if possible, sutured, and occasionally periosteal transplantation should be considered; further, in case osteosynthesis is found necessary, tibial graft, chromicized catgut or small metallic nails may be used. The arm should be fixed in approximately the following position: in the scapular plane, abduction 80 degrees, external rotation 45 degrees, the fixation to be done on an abduction splint made ready before the reduction and very firmly fixed to the trunk; the time of fixation should not, as a rule, be less than three weeks and should be determined by control by roentgen examination and later by the manner in which the head follows smaller rotary movements of the arm; reeducative movements should be instituted, mainly consisting of active movements, supervised by an expert, and continued for from one-half to one year.

Tenoplasty on Thumb.—In a case of loss of opposition of the thumb from poliomyelitis, Silfverskiöld obtained excellent opposition after tenotomy of the tendon of the flexor pollicis longus on a level with the sesamoid bones, fixation in slight flexion of the distal part of the tendon at the radial sesamoid, and transplantation of the proximal part of the tendon to the radial sesamoid and the radial border of the first metacarpal, so that it passed from the canalis carpi close to the opponens muscle and thus parallel with and on the same level as the direction of its fibers and force. In a case of ulnar paralysis the author transplanted with good result the distal tendons of the sublimis muscle to the dorsal aponeurosis just distal to the metacarpophalangeal articulation.

Injection Treatment of Hemorrhoids.—It is Meisen's belief that the injection treatment of hemorrhoids is a sound and warrantable one and that it is preferable to the ordinary operative treatment. It is gentle and painless, and does not require any anesthesia or a stay in the hospital. The author has treated 1,700 cases. He starts with a 50 per cent dextrose solution and continues with it in the ramified and thin-walled varices of the second order—just those varices apt to undergo necrosis—while he reserves the 25 per cent sodium salicylate solution (from 3 to 5 cc.) for use in the main trunks, wherefrom it disappears into the circulating blood within a few seconds.

CORRECTION

"Pneumococcal Cerebral Abscess in Child Aged Two Months."—In the abstract of the article from the *Archivos latino-americanos de pediatría*, Buenos Aires, by C. Pelfort and M. L. Saldúm (THE JOURNAL, January 19, p. 271), the figure as to "the enlargement of the head (circumference 100 inches)" should have read "42 cm." The authors state that this is 4.2 cm. larger than normal (37.8 cm.).